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ORIGINAL ARTICLES.

BRONCHIECTASIS IN THE TUBERCULOUS. AN UNUSUAL CASE REPORTED.

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DR. FRIEDRICH A. HOFFMANN, of Leipzig, in his article upon the bronchi in "Nothnagel's Encyclopedia of Practical Medicine," writes[1] "as a fundamental principle we may accept the axiom that tuberculosis may occur as a complication of bronchiectasis, but not the reverse, which is practically correct." He also says[2] "in a certain number of cases tuberculosis complicates the clinical picture of the bronchiectasis. While the one is not excluded by the presence of the other, they do not co-exist very frequently. Smaller bronchiectacic areas which have no special clinical significance are not infrequent in tuberculosis. There is a tendency to formation of larger bronchiectacic areas in tuberculosis only in cases which tend to recover by the formation of connective tissue and these are always from circumscribed processes occurring in the apices of the lungs. Emphysema of the lungs of a higher degree is often found in the final stage of bronchiectasis, which begins as an emphysema of the borders of the lungs representing a kind of compensation to aid in the filling out of the pulmonary space in the thorax; its occurrence is favored by coughing."[3]

These statements accord with my own clinical experience. When we find clearly marked bronchiectasis in a case of pulmonary tuberculosis, it is nearly always in an old chronic case of fibroid phthisis, in which the fibrosis is so extensive as to cause dyspnea upon even moderate exertion. I need not dwell on the diagnosis between an enlarged bronchus and a cavity, you Fellows of the Climatological are too well acquainted with the classical picture. Nevertheless, even the highest authorities are sometimes mistaken in their diagnosis, but in most instances it is not difficult for the trained observer to distinguish between them.

The case that I wish to bring before you has quite unusual features and, so far, I have not been able to find a record of a similar one. It has rather a long history, of which I will present the salient points:

Case.—Mrs. O., residing in Western New York State, aged forty-eight years, had enjoyed fairly good health except for a tendency to catch cold in the spring and get run down. In May, 1900, she caught a more than usually bad cold and became much depressed by it. The diagnosis made by the family doctor was bronchitis, but there was no examination of the sputum. She rallied from this after a two months' trip in Europe, and returned with only a slight cough and expectoration. In January, 1902, she became worse again, went to southern California without benefit, and then to the Adirondacks. While there her cough and expectoration almost disappeared, but coincident with this change she developed a fever and returned to her home at the end of June, 1902, feeling worse. She came to Colorado Springs the following July.

I first examined her on July 15, 1902. Her height was 5 ft. 7 in., weight 119½ pounds, average normal weight 130 pounds. Temperature A.M., normal; P.M., 101° F., pulse 100, weak, respiration 22, some gastro-intestinal indigestion, sleeping poorly, very nervous, cough infrequent, moderate, but spasmodic. The expectoration was scanty, watery, with a little mucus and pus, containing many staphylococci and streptococci, but no tubercle bacilli. The chest expansion was barely 2 inches. There was a small area of consolidation in the right middle lobe, around the root of the lung, and over this area the sounds were conducted and without râles. There were a few scattered dry râles and semitubular breathing at the right apex above the second rib. The blood examination showed 3,672 red cells and 13,200 white cells, hemoglobin 68 per cent., no signs of malaria or typhoid. The temperature soon began to be above normal throughout the twenty-four hours, running up to 102° F. in the afternoon and evening, dropping to 100° F. in the morning. There was a slight chilliness and an inclination to sweat, with increasing loss of flesh and strength. Cough gradually became more frequent and irritable but there was no increase or change in the expectoration. Becoming rapidly worse, she was put to bed on August 13.

A second blood examination, made four weeks after the first, showed no leucocytes, no malaria, no Widal's reaction, an increase of red cells to 4,625,000 and hemoglobin to 75 per cent. The blood count and percentage of hemoglobin still remained, however, much below what is normal, after a month's residence at 6,000 feet elevation. Her temperature at this time ranged from the lowest point, which usually occurred at midnight, from 99⅗ to 103° F. the highest point, at 4 P.M., never dropping below normal in the whole twenty-four hours. From August 23 to September 2 it showed a marked rise, the highest point being reached on August 29, when at 6 P.M. it registered 104⅗° F. There were frequent examinations of the sputum made. On August 24 no tubercle bacilli were present, but on the following day tubercle bacilli in the number of 50 to 100 to each field were discovered, there being two or three groups of 10 or 12 bacilli to the field; the other tubercle bacilli lay scattered pretty regularly, some discrete, some forming V's, and some

1. W. B. Saunders & Co., page 202, 1903.
2. W. B. Saunders & Co., page 184, 1903.
3. Ibid.

end to end. They stained well and were beaded. On August 26 I commenced giving a saturated solution of iodide of potash, beginning with 5 drops three times a day, increasing one drop a day. On September 1, at 4 P.M., her temperature was 104° F. She then had a violent eruption of fetid purulent sputum, scarcely ceasing coughing for several hours. The odor was not that of gangrene, nor did the microscope show the characteristics of it or of a broken-down gumma, or of a pneumonic abscess.

After this occurrence the temperature began to drop, and from this time on the expectoration continued much freer than before the eruption. It always showed some tubercle bacilli. The cough was much less harassing and, as has been stated, the temperature fell so as to usually range between 99 and 101° F., and it continued to fall so that between about the last half of November and first half of December it was nearly normal. During this time the patient's general condition was much improved, particularly as regards her strength and digestion; she spent most of the day lying out of doors and the iodide of potash, which had been increased up to 40 drops a day, was changed for Nourry's iodine wine, 3 drams 3 times a day. Whenever the temperature rose, as it did several times afterward, and was always accompanied by a more or less complete cessation of cough and expectoration, the iodide of potash solution was again resorted to, 40 grains in twenty-four hours, the result invariably being that the expectoration and cough returned and the temperature dropped. On December 10 the temperature again began to rise, reaching 104.4° F. on the morning of December 14, when there was an especially violent eruption of purulent expectoration, 16 ounces in twenty-four hours. After the first eruption there was no odor to the sputum. The microscope revealed many tubercle bacilli in compact groups of 10 to 50 in each. These groups had the appearance of having been compressed and molded into shape, looking as if they must have been confined in a surrounding envelope though there was none then surrounding them. Other bacilli and cocci were absent, although many had been present up to the time of the first eruption, since which time they had gradually disappeared.

Macroscopical Appearance.—Sputum divides itself into three layers, the lower comprising about half the bulk; is rather clear, like saliva, with but few flakes. The second or middle layer consists of masses of tough, yellow muco-pus in separate masses, elongated, finger-like; the top layer, consisting of about one-eighth of the bulk, is of white froth. On January 8 specimen submitted showed at the bottom a fourth layer of muco-pus. Immediately after this eruption the temperature fell until January 18, when the sputum again became scanty and the temperature rose. There was then another similar eruption followed by a like drop in the temperature. Two weeks later the expectoration again became scanty, the high fever returned, and this was quickly followed by an eruption and then a fall of temperature. Since this time the expectoration has remained free and the temperature moderate. The number of bacilli has steadily decreased so that at present they average only 5 to a field. The character of the sputum is now more mucoid than purulent and has the blenorrheic character of a bronchiectasis. The amount averages 5 ounces in twenty-four hours, the proportion of the thick material steadily diminishing. The patient is gaining in weight and strength and now drives out and walks daily.

With respect to the physical signs, previous to the first eruption atalectasis developed in the right lower lobe. After the eruption there was a partial clearing of the consolidation in the middle lobe and more air began to enter into the lower. At the time of each eruption, large, coarse, moist râles of varying character were heard over this area. There were also transitory bronchial râles on the left side. During the intervals all râles generally disappeared, except that the tuberculous râles have been a little more noticeable at the right apex than at first. At no time was there any good

evidence of a cavity in any part of the chest. On March 3 an X-ray picture was taken of the back of the thorax and on March 13 a picture from the front was taken. You will see by the two skiagraphs that there is upon the right side what appears to be a dilated bronchus. It was over this region that the original dulness was noticed. This appearance shows in both pictures, taken front and back, and seemed very evident on direct inspection with the fluoroscope. In the front view the wrong side of the plate was accidentally applied so that the enlarged bronchus shows on the left instead of the right of the picture.

For the past three weeks the patient has been

daily inhaling the vapor of compound tincture of benzoin with equal parts of glycerin and alcohol, from a large, globe inhaler, the vaporization being effected by air compressed by water pressure so that a large volume of vapor is produced without fatigue to the patient, who uses it by deep inhalations for fifteen minutes, with frequent intervals of rest. The expectoration now shows a more rapid diminution of the thicker material and of the pus and bacilli, and the periods between the coughing and raising have become prolonged, especially since the inhaling has been practised.

In order to arrive at a diagnosis it is well to first reconsider the main points in the history of the case: We have a woman subject to frequent attacks of bronchitis. A period when there was a good deal of spasmodic coughing without expectoration and a general depression of health, but no fever. Then a continuous fever and not intermittent like hectic cough diminished, and still no expectoration; emaciation; general depression; gastro-intestinal indigestion, with no relief of the fever from treatment. Next a rapid increase in the temperature, with bacilli first appearing. Then came relief, with the administration of iodide of potash, which apparently effected its purpose by causing an absorption of lymph and a free escape of purulent tuberculous matter, which had evidently been compressed in some sac or tube. As a result a subsidence ensued of the high continuous fever and in its place an ordinary mild hectic, with free expectoration and moderate cough, interrupted, however, several times by a cessation of the cough and expectoration, followed by a return of the high, continuous fever and no relief until the iodide of potash was again freely given. Finally, a period of six weeks of almost steady improvement with free but slightly diminished cough and expectoration.

The local pulmonary signs indicated an old inactive tuberculous process at the right apex and solidification around the root of the right lung, with slight incomplete atalectasis of the right lower lobe. Up to the time of the first eruption the presumed tuberculous area at the right apex remained quiescent, but the consolidated area at the root and the atalectasis increased. Following the eruption these two conditions were both diminished, but at the extreme right apex there appeared some return of activity.

Neither Dr. W. H. Swan, who has seen the case several times, nor I could detect any evidence of a cavity, and the character of the expectoration negatives the idea of its presence, as also does the general behavior and the clinical picture of the patient. The local signs at one time suggested a broken down gumma, but the expectoration and other symptoms did not. The patient bore none of the stigmata of syphilis and the history was totally opposed to this diagnosis. Moreover, the iodide of potash could not be administered except in moderate doses without producing iodism, or only for a short time. There was no history of an acute pneumonia, which might have resulted in an abscess. Gangrene of the lung, of which I have seen several cases, and as it happens, two within the year, has various points of difference, especially in the odor and constituents of the sputum, though in the violence of the cough and the eruption there is a resemblance to this case.

My theory is that there had been in some indeterminate time in the patient's history, an acute tuberculous infiltration at the right apex resulting in an arrest by fibrosis; and also tuberculous infiltration of the bronchial glands, probably preceding the apical disease. That, commencing during the ill health which immediately preceded the patient's coming to Colorado, the tuberculous glands began to suppurate and press on the right bronchus above what may have been a previous dilatation thus causing a partial stenosis of the right bronchus. As regards the cause of the presumed dilatation, it might have commenced during the recurrent attacks of bronchitis, or it may have ensued in consequence of the pressure of the enlarged bronchial glands. As the glandular swelling increased there ensued complete occlusion of the tube; then ulceration from the glandular tumor into the enlarged bronchus, so that its contents poured in and tightly closed the dilatation, thus the contents were compressed. Probably this occurred at the time that the temperature ran up to over 104° F. and doubtless by affording a larger area for absorption of septic material was the cause of its doing so. I then commenced the administration of the iodide of potash with the result of producing sufficient absorption of the glandular tumor to relieve the stenosis, so that some of the contents of the enlarged bronchus escaped after violent coughing. However, it would seem as if until comparatively recently the stenosis was not entirely removed, but now it evidently is, because the sputum is very easily raised by the patient, particularly when lying down, and the character of the sputum and cough now resembles that of an ordinary case of bronchitis. At no time has there been marked emphysema or dyspnea, which facts are opposed to the theory of a bronchiectasis of long standing.

Reverting once more to the axiom stated by Hoffmann and quoted at the beginning of this article, viz., that as a fundamental principle it may be said that tuberculosis may occur as a complication of bronchiectasis, but that practically bronchiectasis of large areas never arises as a complication of tuberculosis. Nevertheless it is admitted by him that small bronchiectacic areas without special clinical importance are not infrequent, also that large areas sometimes occur in the tuberculous in cases in which there have been circumscribed processes in the apices and a tendency to recovery by subsequent fibrosis and only under such circumstances. This latter category is apparently the one into which this case falls, insofar as there was undoubtedly a previous tuberculosis at the right apex and in the bronchial glands, but that the bronchiectasis was caused, or, at least, brought into prominence, by the pressure of the swollen bronchial glands rather than by the fibroid changes of the lung tissue.

EARLY RECOGNITION OF IMPENDING OBSTETRIC ACCIDENTS.*

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IN no department of medicine is there such an immense field for the prevention of disease and accident as there is in obstetrics.

Pregnancy, parturition and the puerperium form a distinct closed cycle interpolated in the normal current of the life of the woman. This cycle at the very beginning of its operation, acts as a stimulus whose effect is felt in every fiber and tissue of the woman's body. If the woman is healthy and the pregnancy healthy, the reactions in the general and local organs are normal. Failing either or both, the reactions are abnormal, and may manifest themselves in multifarious ways.

For example, pregnancy produces changes in the general metabolism, in the nervous system, in the blood and circulatory system, in the digestive organs, the respiratory tract, the kidneys, etc. A healthy woman will react normally to the stimulus and the changes will not disorder the patient's life, but if one or the other organ is not well, changes are produced which jeopardize the life or the health of the gravid woman. Should, owing to an unstable nervous system, a disturbance occur in the general metabolism, toxic by-products may be produced which cause toxemia, or even eclampsia. Should the heart prove unequal to the task imposed by pregnancy, discompensation results; have the kidneys been injured by a previous scarlatina, they may prove default under the added burden of pregnancy; if, as a child, the patient had rickets, a difficult labor is probable, and so on.

As far as the ovum is concerned, we may cite the abnormal implantation of the same, either outside the uterus or with the placenta previa, hemorrhagic diathesis if the parents had hemophilia or syphilis, etc.

These few examples will give some idea of the greatness of the possibilities of preventive treatment in obstetrics. They show, too, that the obstetrician must be a man of broad general medical attainments, of accurate medical habits and of acute power of observation so as to determine the existence of an anomaly before it has gained headway and become irremediable, or difficult of remedy.

It may be said with little fear of contradiction, that the pregnant woman in general practice is neglected. Few physicians examine the cases before labor to measure the pelvis, to see if heart, lungs, kidneys, etc., are normal, to see if the pregnancy is normal. Unless a patient gives a history of previous difficult labor, or has pronounced organic disease, she goes into labor with her condition unknown to her accoucheur. It is then too late to remedy the neglect, and as a result, many mothers and babes are lost, or crippled for life.

By a moderate amount of intelligent prevision, nearly all obstetric accidents may be prevented, or at least mitigated. The practitioner must determine early in pregnancy and throughout the period, if every organ of the woman is sound, and is carrying the strain of pregnancy well, and if the pregnancy is a normal one. Toward the end he must study the mechanical conditions regarding the size of the pelvis and the size and position of the child. The possibilities of post-partum hemorrhage, of puerperal sepsis, of rupture of the uterus, of ophthalmia neonatorum, are to be borne in mind. In order to prevent one from overlooking a symptom or a point in the anamnesis which would suggest the likelihood of any complication arising, it is advisable to write the patient's history on a special blank so designed as to elicit the facts bearing on the various possible complications. Such blanks may be found in obstetric text-books though most accoucheurs prefer to design their own. In filling out these blanks, the answers of the patient to the various questions will naturally suggest to the examiner the probability or improbability of the various obstetric complications.

Recognition of Impending Eclampsia.—Eclampsia and its allied conditions, uremia, and toxemia without convulsions, are fatal complications in pregnancy, but fortunately are almost always recognizable and preventable. Rarely, it must be allowed, eclampsia occurs like thunder from a clear sky. The real causes of eclampsia are still unknown. The theory of greatest plausibility is that the convulsions are due to a toxemia, this toxemia the result of abnormal metabolism or insufficient excretion, or both, either in the mother or in the child. Causes for abnormal metabolism may be sought in the nervous system or in heredity; causes of deficient excretion, in disease of the special vital organs, the liver, the blood-forming organs, or the kidneys. Examination with a view of preventing convulsions from these sources, will proceed along the lines indicated.

One must interrogate the family history. The mother may have been eclamptic or nephritic or rheumatic; there may be a history of mental disease, neurasthenia, or alcoholism in the parents. Then the personal history of the gravida; did she have any infectious disease leaving damaged kidneys, scarlatina, actual nephritis, or a deranged liver, jaundice, etc., or infantile convulsions? All these conditions indicate the possibility of eclampsia. Convulsions in a previous pregnancy do not render probable a repetition in the present, unless they were due to nephritis, and the latter condition continues. Thus a distinction must be drawn between uremic eclampsia and toxemic eclampsia, though clinically, and as far as the treatment is concerned they are identical.

As a routine practice, the urine of pregnant women should be systematically examined, but experience has shown me that we cannot rely on

* Read before the Chicago Medical Society, May 27, 1903.

either the positive or the negative evidence thus furnished. Even when the urine shows distinctly the existence of a nephritis, eclampsia is rare, and one interrupts the pregnancy more to prevent damage to the kidneys than to forestall convulsions. Nephritis may exist without urinary evidence, and the kidney of pregnancy may present the urinary findings of nephritis when the latter does not exist. Nevertheless, the presence of albumin and casts is the most reliable sign of threatening danger, and should always be the object of careful search during pregnancy.

Next in importance is the amount of urine passed daily, together with the specific gravity, *i.e.*, the daily amount of total solids excreted. Normally, the pregnant woman passes 60 ounces of urine a day, with a specific gravity of 1.014, giving her a normal excretion of solids. The patient may pass 30 ounces of urine with high specific gravity, and be well, or more urine with low specific gravity. When, however, the amount of urine is small and the specific gravity low, one must consider excretion deficient and take measures to increase it. One should therefore, instruct all pregnant women to measure the quantity of urine systematically, and report the amount regularly to the physician.

Of least importance, in the writer's experience, is the urea index. Cases may be cited where the gravida passed urine with less than one-tenth of one per cent. of urea for a week, and enjoyed perfect health. On the other hand, a colleague of the writer lost a patient from eclampsia who was passing 1 $^{6}/_{10}$ per cent. of urea two days before the attack.

The writer at present places most reliance on a careful study of the patient, as just described, and a watch for the *symptoms* of deficient excretion or of toxemia. Each pregnant woman is put on a plain, not overnitrogenous diet with plenty of water and milk. She is instructed to appear often during the pregnancy, to report at once if she has headache, nervousness, insomnia or somnolence, neuralgias, eye and ear symptoms, nausea and vomiting, swelling feet or eyelids, diminished excretion of urine, constipation, etc. In short, the general health of the patient is the object of continual solicitous regard. Should the patient at any time present such symptoms, or should the examination of the urine show deficient excretion, the case is carefully investigated and proper treatment instituted. A painstaking examination of the patient is made, not forgetting to study the pulse for increased arterial tension and the eye-ground for retinitis. It is not alone the examination of the urine, but the general condition of the patient and her family and personal history also that require watchful interrogation if we are to forestall the grave accident, eclampsia.

Recognition of the Puerperal Hemorrhages.—Of these only two will be considered—post-partum hemorrhage and placenta previa. Every pregnant woman should be fortified against post-partum hemorrhage, and the prevention should begin as soon as the patient engages her physician.

The family and personal histories are of significance. If the mother or the sisters of the patient, or the patient herself have had hemorrhage or atonia uteri at the time of labor, the physician should lay the fact away in his mind. If the patient had late menstruation, with or without chlorosis, irregular, painful, or profuse menses, or if there is a clearer history of endometritis, the possibility of an abnormal third stage is to be borne in mind. If there are gross pathological conditions present, as fibroids, adherent uterus (as from ventrofixations, etc.) deformed uterus, the need for prevision is self-evident. One must make inquiry in regard to the hemorrhagic diathesis—is the gravida a bleeder? The family history, profuse menses, severe bleeding from slight injuries, pains in the joints, extreme exhaustion and dyspnea on slight exertion, point to this diagnosis. One must also consider the possibility of acquired hemophilia and search for malaria and syphilis, which, in the writer's experience, may cause the same. It would perhaps be impracticable to always examine the blood and determine its coagulation time, but in cases where there are evidences of blood dyscrasia, this should be done.

During labor itself, if the uterus is atonic in the first two stages, it is more than likely to so continue in the third. This is also true of an overtired uterus, or one that has been overdistended. It is worthy of repetition to say, that a history of hemorrhage in a previous labor is a strict warning to prepare far in advance for the present labor. One should remember that chloroform predisposes to post-partum hemorrhage; the same is said of quinine and high altitudes.

Regarding placenta previa, the writer has only this to say: If a woman has endometritis, and especially if the same has caused some puerperal anomaly before, look for placenta previa. Further, if a patient has even a tiny show of blood after the fifth month, keep the possibility of placenta previa plainly in mind, and place the woman in a hospital where the watching may be constant and medical attention prompt. The writer cannot recommend this advice too strongly.

Recognition of Contracted Pelves.—Contracted pelvis is rare in the American-born white, and but little commoner in the black. In general, in the United States, the statistics show 1.5 to 13 per cent. contracted pelves. In the foreign-born population, one meets pelvic deformity oftener. The higher grades of contraction are surely very rare, but a slight narrowing, sufficient to make some irregularity in the labor, is not uncommon. If to this is added the factor of a large child with a hard unmoldable head, severe dystocia may result.

The routine examination, then, of the pregnant woman, having in view the prevention of mechanical disturbances at the labor, should go along two paths—first, the size, shape and inclination of the pelvis, and second, the size and development of the child.

The history of the patient is valuable. Did the woman have rickets when a child? How old was

she when she first walked? If late in walking, or, if there is a distinct history of rickets, the pelvis must be measured with more than usual care. Some flattening will almost always be found. Was she a bottle baby, and weak and puny as an infant? If so, look for a generally contracted pelvis. Was she a premature infant? Look for general contraction, or perhaps hip dislocation. Did she have chlorosis at puberty, and was menstruation late and irregular? Did she conceive late in married life? If so, perhaps she has an infantile uterus and its frequent accompaniment, a generally contracted pelvis. Has there ever been an injury to the pelvis, or joint disease? Has the patient scoliosis?

Pelvic mensuration comprises an examination of the whole bony skeleton for evidence of rickets, osteomalacia, or other distortion.

The external pelvic measurements are totally unreliable as indices of the size of the pelvic cavity. This last must be carefully palpated and measured. If the accoucheur makes it part of his routine examination to palpate and estimate the size of each pelvis in his obstetric and gynecologic practice, he will acquire easy facility in recognizing any diminution or distortion. While the conjugata vera is the most important measurement to obtain, the transverse diameter of the inlet is often necessary for a complete diagnosis. The writer has devised a way that is simple and accurate. The second and third fingers of the right hand are doubled into the palm and held by the thumb while the index and little fingers are firmly extended. The hand is now forced down over the inlet so that the two fingers last mentioned rest on the linea innominata. The left hand is used for internal examination, and from within, the fact that one finger rests on each side of the pelvis is determined. The right hand is removed, holding the fingers firmly in the position they attained, and the distance between the tips is the transverse diameter of the pelvis. Or the pelvimeter may measure the fingers directly, as they rest on the brim. The writer has met not a few instances of narrow pelvic outlet. This contraction will explain a goodly number of cases of delay at the inferior strait. He, therefore, takes the bi-ischiatic diameter as a routine practice, and also the distance between the spines of the ischia, using Ayer's outlet pelvimeter for the purpose.

In multiparæ, the history of previous confinements is of great value. If the labors have been normal, the conditions are probably right, but previous operative deliveries may not have been indicated. Careful discernment is here advisable.

As far as the child is concerned, we can get more information than was formerly considered possible. If the parents are tall and large, the infant is likely to be large. If either has a pronouncedly large and square head, it is likely to be duplicated in the infant. The writer has found this especially true of the mother. The woman may have a history of large children.

Then too, we now have fairly accurate means of measuring the child. Toward the end of pregnancy the patient should be examined. The child should be carefully palpated and a mental picture formed of its size. Then its head measurements should be taken. This is done with an ordinary pelvimeter, or with a special cephalometer. That of Perret is excellent. It is possible with this instrument to obtain surprisingly accurate results, as is proven by measurements taken when the child is delivered. The hardness of the infant's head can only be estimated on internal examination, and best when labor is begun.

Should there be any doubt about the child being able to pass through the pelvis, the patient should be examined each week. At these examinations the head should be forced down on the inlet, and with the fingers in the vagina and the hand outside, the relation of one to the other decisively determined. A woman with a pelvis slightly contracted should not be allowed to go overtime. If one discovers a contracted pelvis during pregnancy, the opportunity of inducing labor is given, or, if the patient goes to term, she may be placed in a hospital and proper preparations made for a complicated labor. Many infants will thus be saved, and many maternal deaths and much invalidism be prevented.

Recognition of Malpresentation.—It is the writer's custom to visit each woman shortly before her labor, to determine by external examination the position of the child, the engagement of the head, the presence of twins, etc. When the labor begins the conditions are known, which is a matter of real comfort. At the same time too, an abnormal presentation might be corrected.

Recognition of Puerperal Infections.—To foresee a puerperal infection is not always easy or practicable. There is no doubt that in rare instances a woman goes into labor with a focus of infection in more or less direct connection with the genitals. This may be an appendicitis abscess, a pus tube, or even an infected uterine cavity. It is hardly probable that a woman can carry an infection of the uterus throughout pregnancy; but that a salpingitis may be so carried, and infection of the peritoneum occur during delivery, has been proven to the writer by actual experience. Extraneous infections, *e.g.*, suppurating ears, a glass eye in a suppurating sac, grip, enterocolitis, cystitis, etc., all make us fearful of sepsis. Unfortunately a bacteriological examination of the vaginal discharge will not give us the needed information. The findings are equivocal. The virulent streptococcus can exist in the vagina as a harmless saprophyte. Many cases run an afebrile course where, judging from a profuse and foul discharge with a granular vagina, one would expect a sepsis; and others with opposite conditions, present some fever. In such cases a history of fever in a previous confinement, suggests the possibility of a repetition in the present one. If the patient has gonorrhea, or if the infant develops ophthalmia, or if there is known gonorrhea in the husband, a late fever in the puerperium may be anticipated, though it is not certain. If the delivery was attended with severe injury to the gen-

ital tract, if the puerpera is anemic from blood loss or of low vitality from systemic disease, as typhoid, pneumonia, septic complications may be expected. Finally, if the accoucheur has been handling pus cases or other infections, or if extreme surgical asepsis in the conduct of his obstetric work is not practised, he may expect puerperal infection.

Recognition of Ophthalmia Neonatorum.—The use of Credé's method of nitrate of silver for the prevention of ophthalmia neonatorum is well known and should be generally practised. Nothing has permanently succeeded it. One may, by close questioning discover evidence of gonorrheal infection in either or both parents, and thus redouble precautions when the child is born and after. If a previous child had sore eyes, this one may be similarly affected. A granular vaginitis is often gonorrheal, and should be cured before labor.

THE CHILD.

There is a field in obstetrics which the light of investigation has hardly penetrated, that is antenatal pathology. About 5 per cent. of children are stillborn, and 1.5 per cent. die a few hours after labor. No doubt a part of these deaths is due to errors of art; and there is a certain proportion of cases where the child dies in the latter months of pregnancy. Syphilis, endometritis, and chronic nephritis are recognized as being the basal factors of some of these deaths, but there is still an unexplained contingent. Ballantyne has done some work in this field, but as yet the practical results have been meager. In one case where successive children had shown the hemorrhagic diathesis, proper treatment given the mother during gestation, forestalled the accident.

Many children suffer from the effects of disease in the parents; beside the gross lesions of syphilis, alcoholism, rheumatism, tuberculosis, neuroses, all may affect the fetus more or less deeply. Visible deformity, congenital weakness, premature interruption of the pregnancy, even non-viability of the child may often be traced back to one or other of these vices in the parentage. This is an extensive and very alluring field—more alluring, because it presents such difficulties. Ballantyne wishes the subject of antenatal pathology, diagnosis and treatment made more the object of our study. The writer regrets the limits of this paper preclude more than these brief references.

During labor, much can be done to anticipate impending danger to the fetus. Should the case be one of eclampsia, placenta previa or other obstetric complication, or a medical complication as typhoid, pneumonia, pulmonary edema, the need for watching the baby is self-evident.

In all cases, however, it is the duty of the accoucheur to ascertain the condition of the child, and to keep himself informed as the labor progresses. The fetal heart tones give the most reliable evidence, and much can be learned by studying their frequency. rhythm and quality. Toward the end of labor, the watchfulness should be redoubled, because here the danger of premature separation of the placenta arises, and also exhaustion of the infant.

The conduct of the physician, therefore, during pregnancy and labor is not one of mere waiting for something to demand his interference, but should be one of armed watchfulness to foresee, far in advance, impending accidents.

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THIOCOL IN THE TREATMENT OF CROUPOUS PNEUMONIA.*

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THE composition of thiocol (potassium guaiacol-sulphonate Roche) is shown by the formula C_6H_3. OH. OCH_3. SO_3K. It occurs as a white, microcrystalline, odorless powder, having a faint bitter-saline taste. It is readily soluble in water, and dissolves also in diluted alcohol, but it is insoluble in ether or in fatty oils.

Having used creosote, guaiacol and similar remedies extensively in the treatment of pulmonary tuberculosis, I was at once impressed with the value of thiocol, when I was assured by the manufacturers, who have a world-wide reputation for skill and integrity, that it would yield for absorption when taken into the alimentary canal, 70 per cent. of guaiacol and that it might be given in large doses without disturbing the stomach. I immediately began its use with tuberculous patients and quickly found that if given at first in a dose of 5 grains after eating, the dose might be rapidly made 2½ grains to 5 larger each succeeding day until the patient could soon take 25 to 35 grains or more, after each meal, without any disturbance of the digestive organs.

Carbolic acid and creosote have been so highly lauded in the treatment of pneumonia that it seemed to me injudicious to try the effects of thiocol in this disease, because it yields such a large percentage of guaiacol and because it is easy to take and does not disturb the digestive organs. I believe that we may safely assume that if sodium salicylate, carbolic acid, creosote and guaiacol are useful, as has been claimed in the specific treatment of croupous pneumonia, then thiocol also should be beneficial to even a greater degree; but if the latter is not beneficial then it is probable that the claims made for the other remedies of this class are fallacious.

With the aid of the Senior Interne, Dr. T. W. Stumm, who was in charge of the ward and who recorded most of these cases, and through the courtesy of another Senior Interne, Dr. C. M. Echols, who made the observations on two or three other cases, we have given the remedy a trial in 22 consecutive cases, taking them as they came without any selection, excepting that thiocol was not given to those who were moribund on admission. In six very severe cases, and in six milder cases recovery occurred but whether influenced by the drug or not, we cannot say. In two cases, III and VI, which were very severe, re-

* Presented to the American Climatological Association, Washington, May, 1903.

covery occurred and we felt encouraged, but a careful study of the symptoms did not enable us to trace any definite relation to the administration of the remedy. Of course, the number of cases in which we have used the remedy is too small to serve as a basis for conclusions, but the reports are strictly impartial and when added to other similarly recorded observations, they will be of value in determining whether remedies of this class are of any service in treating croupous pneumonia.

This study is necessarily imperfect because I did not feel justified in omitting the ordinary treatment employed for this class of cases in this hospital, and, therefore, all of these cases received more or less strychnine, whisky, carbonate of ammonia and anodynes, as indications suggested. They were, however, in other respects than the thiocol, treated in practically the same way as the cases recorded in a paper that I read last June, in which I showed that out of between three and four hundred patients with croupous pneumonia, treated during the preceding fifteen months (who were in every other way under similar conditions), the death rate was 36 per cent. In this series of 22, the mortality has been 45.8 per cent., showing the necessity of analyzing many more cases before forming a conclusion, for of the 10 fatal cases 8 were alcoholics or had serious complications which would necessarily make their chances small; while, on the other hand, the uncomplicated cases under forty-five years of age, all recovered. I have grouped the cases into 3 classes: (1) All cases in temperate persons who were less than forty-five years of age; a class in which the prognosis is usually favorable. (2) All temperate patients over forty-five years of age; a class in which even without complicating disease, the prognosis is generally unfavorable. (3) Alcoholics and other patients in whom there were serious complicating disease; a class in which the prognosis is almost without exception extremely unfavorable.

I have studied carefully in each case the physical conditions, the daily dosage and the duration of treatment, and I have endeavored impartially to estimate the effects, if any, of the remedy as shown by the pulse, temperature and respiration and the physical signs. In this study I have also availed myself of the independent judgment of Dr. E. L. Kenyon, who has analyzed the records of every case with great care. This analysis appears to show that the thiocol did not disturb the digestive organs in any way or cause any unfavorable symptoms in doses as high as 120 grains daily. In Class I, all of the 7 cases recovered, but in none of the cases could the changes be safely attributed to the remedies taken. It will be noted, however, that practically all of these cases terminated by lysis, which was similar to the result reported by Robert Liegel (*Wiener medizinische Wochenschrift*, May, 1898), who reported 72 cases of pneumonia treated with 120 grains daily of sodium salicylate without a death. The records briefly, are as follows:

CLASS I.—TEMPERATE UNCOMPLICATED CASES UNDER FORTY-FIVE YEARS OF AGE.

There were 7 of these cases, all of which recovered.

Case I.—A laborer, forty years of age, had only the upper lobe of one lung involved. He did not receive any thiocol until the ninth day of the disease, on which he had 25 grains. This day his pulse ranged from 90 to 120, temperature 102 to 104.2° F. and respiration 44 to 66. The next day he received 75 grains of thiocol and for the four succeeding days, 120 grains each day. The disease terminated by lysis, but there was no evidence that it was modified in any way by the drug.

Case II.—Laborer, aged forty-two years. Habits irregular, but not really intemperate. Large and robust. Lower lobe of right lung only involved. Twenty-five grains of thiocol were given the fourth day of the disease when the temperature ran 101 to 104.2° F., pulse 80 to 100, respiration 28 to 32. The next (fifth) day he received 70 grains of thiocol. The temperature averaged about a degree lower but the pulse and respiration were practically the same. The sixth day he received 100 grains, the seventh and eighth days each 120 grains, during which time the temperature, pulse and respiration gradually grew less, and they became practically normal on the ninth day. In this case vomiting occurred several times after taking whisky and a full dose of thiocol but it did not appear due to the latter.

Case III.—Scholar, aged fourteen years. Involvement of the lower half of the right lung. This patient had been in the hospial 4½ weeks with typhoid fever when he was taken down with croupous pneumonia. On the second day of the disease, the temperature was 102 to 105.2° F., pulse 108 to 120, respiration 30 to 48. He was given 10 grains of thiocol. The third day the temperature was 102 to 104° F., pulse 108 to 128, respiration 32 to 38, thiocol, 55 grains; fourth day, temperature 97.4 to 104.2° F., pulse 100 to 128, respiration 124 to 132; fifth and sixth days the highest temperature was 103.4° F., highest pulse 136, highest respiration 132; 85 grains of thiocol given each day; seventh day, temperature 97.8 to 101.4° F., pulse 96 to 120, respiration 28 to 32, thiocol discontinued at that time. The boy had been vomiting for a couple of days and this continued for two days afterward, but it appeared to result from heroin or whisky. The vomiting did not occur after the ninth day and he made an uninterrupted recovery.

Case IV.—Clerk, aged twenty-one years. Both lower lobes involved when admitted to hospital on fifth day of disease. On the sixth day, temperature 102 to 103.8° F., pulse 94 to 112, respiration 24 to 40. Gave only 10 grains of thiocol; seventh day temperature 99 to 102.2° F., pulse 76 to 98, respiration 28 to 40, thiocol 70 grains; eighth day, temperature 98.4 to 101° F., pulse 66 to 80, respiration 22 to 30, thiocol 110 grains; ninth to sixteenth days, temperature and other symptoms

gradually subsided. During this time he took 120 grains thiocol daily, but without apparent effect.

Case V.—Electrician, thirty-six years of age, temperate. Lower lobe of right lung only involved. On the eighth day of the disease, temperature 99 to 103° F., pulse 100 to 112, respiration 24 to 28. On the ninth day, temperature 100.4 to 102.2° F., pulse 96 to 116, respiration 24. Thiocol 70 grains. On the tenth day 110 grains thiocol, eleventh day, 120 grains, by which time temperature had subsided to normal; remedy continued three days longer. Marked improvement (lysis) during the first three days the remedy was being administered, but it was at the time when the disease should naturally have terminated spontaneously so that the effects cannot be ascribed to the medicine.

Case VI.—Laborer, thirty-three years of age; four-fifths of left and a small part of right lung involved, thiocol 40 grains given on seventh day when temperature was 102 to 103° F., pulse 108 to 120 and respiration 24 to 40. The next day temperature was two degrees lower but pulse higher, respiration the same, thiocol 75 grains. Next day (ninth) same amount of thiocol, temperature same but pulse and respiration much lower. Temperature continued from one to two degrees above normal with pulse 72 to 96 and respiration 20 to 24 for the next ten days, during which the thiocol was continued in doses of 40 grains daily. A slow recovery. No apparent effect from remedy.

Case VII.—Waiter, aged thirty-two years. Upper right lobe only involved. On the fifth day of the disease, thiocol 25 grains were given, the record showing temperature 102 to 104.6° F., pulse 110 to 120, respiration 26 to 40. Next (sixth) day very slight improvement, thiocol 60 grains; next (seventh) day, thiocol 110 grains, temperature 101.2 to 101.8° F., thiocol 120 grains given each of the next four days, during which symptoms became normal. Effects of remedy doubtful, as the disease should normally have terminated in the same way.

CLASS II.—TEMPERATE PERSONS OVER FORTY-FIVE YEARS OF AGE.

There were three patients in this class, the first, just forty-five years of age, recovered, the others died.

Case VIII.—Laborer, just forty-five years of age; right upper and left lower lobes involved. Thiocol given first on tenth day (day of crisis). On the eleventh day, 50 grains of thiocol, twelfth, thirteenth and fourteenth days each 120 grains; steady improvement, but not apparently modified by drug.

Case IX.—Decorator, aged forty-eight years. Lower right lobe involved. On ninth day of disease, temperature 100.6 to 102° F., pulse 104 to 112, respiration 32 to 36. Thiocol 40 grains during the day. The following day thiocol 110 grains and afterward thiocol 120 grains daily until the fourteenth day. Temperature, pulse and respiration dropped gradually to nearly normal on the fifteenth day, but the patient was delirious after the eleventh day. On the sixteenth day the temperature was normal, pulse 96 to 100, respiration 28, but weak. Death—cause uncertain.

Case X.—Salesman, aged fifty-four years. Whole right lung involved, thiocol not given until seventh day. Death came on the evening of the eighth day. No effect from the remedy.

CLASS III.—ALCOHOLICS AND OTHER CASES WITH SEVERE COMPLICATIONS.

There were twelve of these, eight or 66⅔ per cent. of whom died.

Case XI.—Laborer, aged thirty-one years; alcoholic. Upper lobe of right and a small part of lower left lobe involved. On seventh day, temperature 102 to 105° F., pulse 92 to 132, respiration 28 to 34. Gave thiocol 25 grains; eighth day 75 grains; ninth day 110 grains; tenth day, crisis; tenth and eleventh days thiocol 120 grains each day. An uninterrupted recovery without sensible modification of symptoms by medicine.

Case XII.—Machinist aged twenty-eight years, heavy drinker. Upper half of left lung involved. Thiocol given after eleventh day, 110 grains each day until the fifteenth day. The symptoms steadily improved after the ninth day. No perceptible effect from the medicine.

Case XIII.—Laborer, aged forty-eight; alcoholic. Upper part of lower lobe of right lung and a small spot in lower lobe of left involved. On the eighth day of the disease, patient received the first thiocol, 20 grains. Temperature 99 to 103° F., pulse 96 to 124, respiration 24 to 32. Slightly better the next day; tenth day about the same. Thiocol 110 grains. On eleventh day, temperature 98.6 to 104° F., pulse 92 to 104, respiration 36 to 40, thiocol 120 grains. On twelfth day temperature normal, thiocol continued in the same dose for five days. Uninterrupted recovery.

Case XIV.—Laborer, aged thirty-two years, alcoholic. Entire left lung involved. On fourth day, temperature reached 104° F., one dose 5 grains of thiocol was given; fifth day temperature 101.4 to 102.4° F., pulse 112 to 140, respiration 32 to 38, thiocol 50 grains; sixth day worse; thiocol 100 grains; seventh day, temperature 101.8 to 103.6° F., pulse 140 to 160, respiration 36 to 52, thiocol 110 grains. Crisis eighth or ninth day. Thiocol same daily dose to twenty-second day. Uninterrupted recovery.

Cases 15, 16, 17, 18, 19, 20, 21 and 22, were all alcoholics; five of them less than forty-five years of age and three older than this. In Case XV the whole left lung was involved, the temperature was not high; the pulse for the two days he was taking the thiocol ranged from 108 to 148, respiration 30 to 44, death on eighth day of disease.

Case XVI.—Laborer, aged thirty-nine years; alcoholic and complicated with pericarditis. Lower lobe of right lung involved. Thiocol given fourth and fifth days of disease; died the sixth day. In both of the foregoing about 1,000 c.c.

of blood were drawn from the arm within twenty hours before death. Thiocol had no effect.

Case XVII.—Boxmaker, aged forty years; alcoholic. About two-thirds of right lung involved. Heart slightly enlarged and muscle weak, temperature never higher than 103° F. and until the day of death, pulse did not exceed 106 or respiration exceed 40. Thiocol given for five days, 35 to 120 grains daily. Death ninth day of disease.

Case XVIII.—Laborer, aged thirty-eight years; alcoholic. Inflammation involving mainly the middle third of right lung (mostly middle lobe); on second to fifth days temperature was 102 to 106° F., pulse 100 to 160, respiration 24 to 36, thiocol 20 to 120 grains daily; no effect. Death sixth day.

Case XIX.—Jockey, aged forty-two years; alcoholic. Lower half of right lung involved. Thiocol 25 to 120 grains daily from fifth to tenth days; temperature 101.8 to 105.4° F., pulse 110 to 140, respiration 24 to 64. Death on tenth day. No apparent effect from medication.

Case XX.—Peddler, aged forty-eight years; alcoholic. Small area involved in middle portion of right lung. Thiocol given seventh and eighth days in medium doses. Died ninth day, without apparent effect from medicine.

Case XXI.—Laborer, aged fifty-one years; alcoholic. Lower lobe of right lung involved. Thiocol given in uncertain doses fifth and sixth days. Died sixth day. No effect from medicine.

Case XXII.—Laborer, aged fifty-seven; alcoholic. Asthmatic and some hepatic trouble. Heart's action feeble from the first. Thiocol given sixth and seventh days, 60 to 75 grains. Died seventh day. No effect from medicine.

This report demonstrates that thiocol may be given to pneumonic patients in large doses without disturbance of the digestive organs, and without apparent harm. In no instance could we observe that it affected the temperature, pulse, respiration or physical signs, because in these cases where these factors indicated improvement, the natural course of the disease would have been expected to cause a similar change. We always began with moderate doses and it took three or four days to reach the maximum dose of 120 grains. Possibly different effects might have been noticed if the maximum dose had been attained within twenty-four hours. In future trials I would suggest that 5 grains be given as the initial dose and that the amount be rapidly increased until 30 grains are given at each dose, providing that it causes no unpleasant symptoms. In a disease running such a rapid course as pneumonia, quick action must be obtained if a remedy is to do much good.

Proposed Reduction of Alcohol Tax.—The Retail Druggists' Association, at a recent meeting in Washington, adopted a resolution in favor of reducing the tax on grain alcohol to 70 cents a gallon, and favoring the admission of imported alcohol for use in the arts free of duty.

PATHOLOGY AND PROPHYLACTIC TREATMENT OF PUERPERAL SEPSIS.

BY J. CLIFTON EDGAR, M.D.,
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A. PATHOLOGY OF PUERPERAL SEPSIS.

IN the very short time allotted to this division of the subject, I am unable to do more than refer to the more common pathological changes and the principles in the prophylactic treatment. I am accustomed, from the pathological standpoint, to consider the following varieties of puerperal sepsis:

I.—Vulvitis and vaginitis.
II.—Endometritis (1) septic endometritis; (2) putrid endometritis or sapremia; (3) endometritis from mixed infection.
III.—Metritis.
IV.—Salpingitis.
V.—Oophoritis.
VI.—Acute sepsis or septicemia lymphatica.
VII.—Septic phlebitis or septicemia venosa (1) uterine and para-uterine phlebitis; (2) puerperal pyemia or metastatic pyemia; (3) puerperal septic pneumonia; (4) puerperal ulcerative endocarditis; (5) puerperal arthritis; (6) femoral phlebitis or phlegmasia alba dolens.
VIII.—Pelvic cellulitis or parametritis.
IX.—Pelvic peritonitis or perimetritis.
X.—General peritonitis.
XI.—Urethritis cystitis, ureteritis, pyelitis.
XII.—Proctitis.
XIII.—Mastitis.
XIV.—Puerperal septic erythema.
XV.—Puerperal pemphigus.
XVI.—Puerperal tetanus.
XVII.—Puerperal neuritis.
XVIII.—Auto-infection.
XIX.—Gonorrheal infection.

Septic inflammation of the vulval and vaginal mucosa may occur with or without a co-existing endometritis. Here we find infection either superficial or catarrhal and ulcerative, starting usually in some traumatism of the part with or without the formation of the so-called puerperal ulcer, or the grayish-yellow coating of necrosed tissue to which the term diphtheroid has been applied.

Endometritis is the most common lesion in cases of puerperal infection, which, indeed, usually begins as an endometritis either putrid or septic. It is possible, however, for the endometritis to occur from the extension of a vaginitis or of a phlebitic or lymphangitic metritis. We recognize two principal varieties of endometritis, septic and putrid, and allude to a third variety, mixed infection, with regard to which there is still much to be learned.

Septic Endometritis like vaginitis, may be either superficial or ulcerative. The most common condition is a catarrhal endometritis. It is ordinarily limited to the placental site by a zone of cellular infiltration by which the further progress of the infectious germs is prevented. When it becomes general, there is necrosis of the entire endometrium and the development of an ulcera-

tive process. There is a profuse secretion, purulent, and more or less mixed with blood. In mild cases this secretion has usually little or no odor. When, however, the colon bacillus is present, and in putrid endometritis, it is markedly fetid. In some cases the endometrium is only involved in patches here and there, while in others, not only is the whole endometrium destroyed, but the cervical mucous membrane is largely involved. It is most likely to become localized at the placental site, about the internal os, and about the seat of cervical lacerations.

Putrid Endometritis or Sapremia is the endometritis or sapremia caused by the entrance of the saprophytes or putrefactive germs. Recent researches especially those of Bumm, have shown very interesting and important differences between putrid endometritis and endometritis due to mild pyogenic infection, on the one hand, and the same condition when due to virulent pyogenic infection. In both cases the endometrium is the seat of a necrotic process and contains countless micro-organisms, but in the first class of cases there is formed, by a process of cellular infiltration, a protective layer which prevents their further progress. In the severe forms of pyogenic infection the protective zone is not present or not sufficiently developed to form a barrier to the progress of the germs. In putrid endometritis the endometrium is bathed with an ill-smelling, frothy secretion.

Endometritis from Mixed Infection.—Recent investigations tend to show that pure sapremia is not as common as was formerly supposed, and that in many cases pyogenic and sapremic infection co-exist. It is also an undoubted fact that the presence of a focus of putrid absorption in the uterus predisposes to the development of true septic infection. In these cases both putrefactive and pyogenic germs will be found, and the type of the pathological condition will be a mixture of those already described. It is also possible that one of the specific micro-organisms, *e.g.*, the tetanus, the typhoid, or the diphtheria bacillus, may gain access to the uterus and further complicate the condition.

As already noted in endometritis, the usual type of septic infection does not always remain limited to the uterine cavity, but may extend to the body of the uterus, to adjacent structures or organs, or into the general circulation. This occurs when the infection is of a virulent character, when the resisting power of the system is weakened, or when the granulation wall is broken down or disturbed; *e. g.*, by the unwise use of the curette or even of the douche tube. The further history of the case, then, will depend upon the course taken by the bacteria. Thus a metritis, salpingitis, oophoritis may result from the infection.

The lymphatics may take up the infection, giving us acute sepsis or septicemia lymphatica; or one of the six varieties of septic phlebitis or septicemia venosa may occur, as (1) uterine or para-uterine, (2) metastatic pyemia, (3) septic pneumonia, (4) endocarditis, (5) arthritis, (6) femoral phlebitis.

Likewise any of the eleven remaining varieties of infection already mentioned. The course of the infection from the uterine mucosa is shown in these diagrams, the blue color indicating the septic agents. Any or all of these nineteen varieties of puerperal sepsis, and their numerous subvarieties and combinations may present varied and extensive gross pathological changes; still the fact remains that in a very large proportion of cases an autopsy presents no macroscopical evidences of sepsis.

I will refer to two cases only to illustrate the two opposite conditions:

The first case is one upon whom I performed Cæsarean section at the New York Maternity in 1895, for a generally contracted pelvis. The patient was syphilitic with mucous patches on the vulva and the vagina. Death occurred on the twelfth day post-partum from acute streptococcus infection and septicemia lymphatica. There were no macroscopical evidences of sepsis; no peritonitis, no pus in the tubes, and the appearance of the endometrium was normal.

The second example is from a specimen in the Pathological Laboratory of Cornell University Medical College, and illustrates the fact that the septic processes may leave the uterus comparatively unaffected and expend their virulence upon other portions of the body. In this case death occurred on the thirteenth ray post-partum after a full term delivery from general purulent peritonitis and exhaustion. The patient was at first treated on the basis of a diagnosis of acute malarial infection. No local treatment was at any time used. The section through the wall of the uterus shows streptococcus endometritis and extension of the infection through the lymphatics to the peritoneum, causing death. A very moderate exudative endometritis is present. The uterine muscle is almost normal in appearance.

I have selected these two cases for the reason that they represent two opposite conditions. In the first there was an absence of appreciable lesions of puerperal sepsis, and although hysterectomy was proposed in the early part of the disease, it was abandoned, and autopsy showed that it probably would have been without avail.

In the second case, on the other hand, a general purulent peritonitis resulted from the septic endometritis, and hysterectomy early in the course of the infection might have been successsful.

B. PREVENTIVE TREATMENT OF PUERPERAL SEPSIS.

It cannot be too often repeated that when the management of normal labor is regarded as very largely identical with the preventive treatment of puerperal infection, the latter will be of the rarest occurrence. I would sum up the preventive treatment of puerperal sepsis under four heads: (1) General hygienic measures; (2) asepsis of patient, physician and accessories; (3)

limitation of internal examinations and manipulations; (4) antistreptococcic serum.

1. *Hygienic Measures.*—Good blood is the best of germicides, hence the importance of good hygiene during pregnancy; an out-of-door life, good diet, freedom as far as possible from sources of worry and care. The correction of anemia by iron and other tonics, the treatment of any constitutional dyscrasia should not be considered too laborious to prepare the patient against the inroads of septic infection. Under the same heading come certain precautions already discussed elsewhere; *e.g.*, the selection of a sunny and commodious lying-in chamber, as far as possible removed from toilets, sinks and plumbing, and securing good ventilation. All these precautions should be regarded as important because they prepare the patient to resist infecting agents; but it should not be forgotten that all the agents thus combated do not of themselves act as the immediate cause of infection. Nor should the physician forget, in his attention to such details, that the actual cause of puerperal infection is contact of wounds in the birth canal with an infected agent.

2. *Asepsis of Patient, Physician and Accessories. The patient.*—The traditional ante-partum tub-bath calls for severe criticism from the standpoint of asepsis (Sticher,* *Centralblatt f. Gynäkologie,* March 2, 1901; and Strogan, *Centralblatt f. Gynäkologie,* Feb. 9, 1901). Not only is the parturient woman at the end of such a bath immersed in a dilution of her own dirt, but, as has been shown experimentally, the infected water often enters the vagina of both primiparæ and multiparæ. Moreover, under such conditions the danger of nipple infection is always present. The ideal ante-partum bath would be for the patient to stand or sit under a running stream of boiled water, thus eliminating another possible source of septic infection of the parturient woman. When a shower of boiled water is not available, I instruct the nurse to place the patient in a bath-tub and pour several gallons of boiled water, allowed to cool to the proper temperature, over the shoulders of the patient, the patient at the same time being instructed to thoroughly scrub the external genitals and body generally with a coarse, clean wash-cloth and green soap, the nurse using the soap on the back and shoulders. All soap is finally washed off and the bath completed with several quarts of sublimate solution (1:5,000). The patient's external genitals are finally thoroughly cleansed by the nurse with absorbent cotton and a 1:2,000 solution of sublimate. The surface of the body is now dried with brisk friction. A sterile vulval pad as a temporary occlusion dressing is then applied and pinned to a waist-band made from a clean gauze bandage. If a bath-tub is not available, the following procedure is recommended: (1) Have the patient take a sponge-bath of hot water and soap; instead of using a sponge use a clean wash-cloth. (2) The nurse is instructed to cut the pubic hair short, if it is long or thick, with scissors. (3) The nurse now, with a soft hand-brush or absorbent cotton, scrubs with soap and hot water the external genitals, pubes and inner sides of the thighs, and cleanses the vulval canal from above downward with absorbent cotton and soap and water. (4) The parts are now rinsed off with clean water. (5) The same parts are then given a final cleansing with absorbent cotton and 1:2,000 sublimate solution, always toward the anus, care being taken to include the vulval canal with the sublimate solution. A sterile vulval pad or gauze is now applied to the external genitals as a temporary occlusion dressing and fastened by a T-bandage. In every method of cleansing the vulval canal and external genitals the greatest care must be used to avoid the production of erosions by stiff brushes or rough handling, as these may subsequently become infected.

Because the vaginal secretion of pregnant women does not normally contain pyogenic cocci, the douching of the vagina with antiseptics without a positive indication is unnecessary, and increases the risk of infection. Moreover, douching under such circumstances is merely the substituting of an artificial germicide for one of nature—sublimate solution for the germicidal vaginal mucus.

The Physician.—A physician who is dressing suppurating wounds, attending cases of erysipelas, scarlet fever, diphtheria, or other cases of infectious or contagious diseases, should not attend obstetric cases if he can help it. If he is obliged to do so, he should take a full bath, change his clothing, disinfect his hands and arms with special care, and make no internal examinations that are not imperatively necessary, and only with his hands encased in sterile rubber gloves. It is needless to say that any man who practises obstetrics should himself be free from infectious or contagious diseases; *e.g.*, that he should be cleanly as to his habits should bathe frequently, should wear clean clothing, should keep his nails trimmed short and carefully cleaned and should be particular even to fastidiousness about the care of his hands. The use of a sterile operating gown or duck suit and of sterile rubber gloves are additional safeguards. I cannot too strongly urge the use of sterile rubber gloves, as a routine measure in confinement cases. No general practitioner, and no obstetrician who is at all doubtful concerning his personal asepsis, is justified in attending women in confinement without utilizing this simple and effective precaution.

The Nurse.—As already stated, she should be free from any contagious or infectious disease, especially suppurative coryza or skin disease, nor should she recently have attended a case of infectious or contagious disease. She should also have had a full bath and change of clothing, paying special attention to the hair, which should be well washed with soap and water, then with

* Statistical proof from the Imperial Maternity Asylum of St. Petersburg shows a fall of 7.4 per cent. in fever in the puerperal woman by the substitution of the shower for the old-fashioned tub-bath.

plain water, and then with a bichloride solution (1:1,000). She should be expressly forbidden to give douches or practise any internal manipulations while cleansing external genitals.

Instruments and Water Used.—All instruments or other appliances which are to come in contact with any part of the parturient tract should be first thoroughly scrubbed with green soap and water, especial attention being paid to any cracks or crevices, and then boiled for not less than twenty mintes. They should then be removed by an aseptic instrument and kept in a solution of carbolic acid or lysol until needed, or, better, used directly from the boiler or sterilizer. All instruments which cannot be thus sterilized should be avoided. Catheters and douche tubes should be of glass or metal, preferably glass. If it becomes necessary to use a Barnes bag, a gum catheter or similar appliance, it should be first thoroughly washed with green soap and water and then sterilized by boiling or steam under pressure. All water used for immersing instruments, washing the external genitals, and giving douches should first be boiled.

3. *Limitation of Internal Examinations.*—It is of special importance if the physician has recently been in attendance upon any case of infectious or contagious disease, or if his hands have been contaminated by septic discharges of any kind, and in all cases during and after the third stage of labor, even if sterile rubber gloves are made use of.

It is, of course, true that in many cases it is impossible to carry out such rules as the above in practice. Skilled nursing and sterile accessories are not always available. But if the physician will but remember that septic contact is the one source of infection, if he insists upon and personally supervises cleanliness and antisepsis of the external genitals and the immediate surroundings, and avoids all unnecessary interference, especially after delivery, very satisfactory results may be secured even among most unfavorable surroundings.

It was formerly the custom to make frequent examinations during the whole course of normal labor, and this is still taught in some text-books, but the consensus of modern teaching is to the effect that such a course is unnecessary and dangerous. It is true that, with proper care as to asepsis, the danger of infection is limited, but it nevertheless exists, since even with the greatest care it is impossible to exclude all sources of error. Increasing experience diminishes the necessity for vaginal examinations, and it should be the effort of the physician to acquire such familiarity with abdominal palpation and the clinical history of labor that the necessity of frequent examinations may not exist.

Having made the first examination the attendant should endeavor as far as possible to determine the further progress of labor by external palpation and by observation of the patient, but, if in doubt, should repeat the examination often enough to satisfy himself as to the non-existence of a delayed first stage. Exact rules as to the frequency of examinations cannot be given, but in normal cases one careful examination early in the first stage and another after the rupture of the membranes should be sufficient for the experienced accoucheur.

In many instances it is possible to conduct a labor without any internal examination, since the chief information gained through the vagina is the stage of dilatation of the cervix, and this is often not especially important to know. Leopold and Sporling* and Leopold and Orb† believe that it is possible to conduct safely 90 per cent. of all labors without any other than external methods of examination. Among the first 1,000 cases of these observers there were only 6.5 per cent. of errors of diagnosis, while in the second thousand the percentage was only 1.77 per cent.

4. *Antistreptococcic Serum.*—The preventive power of Marmorek's serum was tested by Wallich upon 383 women who bade fair to have a septic puerperium or by reason of certain acts of exposure or accidents of delivery. Despite the precaution, 56 developed phenomena of infection. The possibility that the serum therapy of the future may offer us a preventive measure against puerperal sepsis, must be granted.

50 East Thirty-fourth Street.

THE DEVELOPMENT OF OUR KNOWLEDGE OF PUERPERAL INFECTION.†

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AS WE glance through the ever-thickening mists of the retreating centuries we find the mysterious and fatal fever that so often destroyed the young mother attributed to the sinister influence of an offended or malign Deity, the wicked spell of an enemy, some unknowable atmospheric influence, the diversion of the milk, the retention of the lochia.

Samuel Bard,§ the author of the first American work on Midwifery, said in his fifth edition published in 1819, "There are few diseases which have more perplexed physicians or on which their opinions have been more divided and contradictory than puerperal fever." . . . "It seems at length settled that it is inflammatory in its origin and putrid in its course, and, besides, that it is most remarkably influenced by an inscrutable epidemic constitution of the atmosphere." . . . "It is determined to be at one time more inflammatory, at another more putrid, and on some occasions so malignant and so suddenly fatal as to elude every plan of cure."

* Arch. für Gyn., XLV, 339 to 371.
† Arch. für Gyn., XLVIII, 304 to 323.
‡ An Introduction to a Discussion of Puerperal Sepsis, before the New York Academy of Medicine, May 21, 1903.
§ A Compendium of the Theory and Practice of Midwifery, by Samuel Bard, M.D., LL.D., President of the College of Physicians and Surgeons in the University of the State of New York, Fifth edition, 1819.

These sentences, sadly quaint as they appear now, then fairly represented the views of the leaders of our profession. Occasionally a voice would be heard in faint doubt or protest, but not until a time that your fathers could remember did a man appear who had the prophetic insight and the courage to uphold a doctrine nearer the truth.

February 13, 1843, there was read before the Boston Society for Medical Improvement, and in April, 1843, there appeared in the *New England Quarterly Journal of Medicine and Surgery* an essay by Oliver Wendell Holmes,* then the recently appointed professor of anatomy and physiology in Harvard University. This essay, big with prophecy and shining with the light of genius and truth, was bitterly assailed. Meigs, then professor of Midwifery at Jefferson Medical College, characterized it as the "jejune and fizenless dreaming" of a sophomore writer who would "black and ineffaceably spot the hard won reputation of every physician." Holmes' initial theorem, which radically opposed the most influential teaching of his time, was, "*The disease known as puerperal fever is so far contagious as to be frequently carried from patient to patient by physicians and nurses.*" He defends this with a mass of evidence just as unimpeachable now as when he placed it before his alarmed and hostile audience that February evening. Tracing relentlessly the "private pestilence" that too often followed like a specter the practice of many a physician and that, as he graphically states, "was as deadly in some (lying-in) institutions as the plague; which has killed women in a private hospital in London so fast that they were buried two in one coffin to conceal its horrors; which enabled Tonnellé to record within a few months 223 autopsies at the Maternité of Paris; which has led Dr. Lee to express his deliberate conviction that the loss of life occasioned by these institutions completely defeats the object of their founders; and out of this train of cumulative evidence, the multiplied groups of cases clustering about individuals, the deadly results of autopsies, the inoculation by fluid from the living patient, the murderous poison of hospitals, does there not result a conclusion that laughs all sophistries to scorn and renders all argument an insult."

It is evident that the factor in this remarkable essay which roused so much ire was the alarming statement that the accoucheur was directly responsible for the infection of his puerperal patient, that "the time had come when the existence of a private pestilence in the sphere of a single physician should be looked upon not as a misfortune, but a crime."

Meigs,† prominent, influential, learned, pedantic, in a series of lectures to his students in 1850, hotly combated the possibility of contagion, holding with most of those of his day to the old ideas of the time of Bard and the centuries before. His most important means of treatment, then time-honored and respected, were free purgation and the lancet. In the free use of the latter he placed almost implicit confidence. "Courageously and resolutely persevere until 24 ounces or more, not too many more, are taken away and you may retire after your ministration, feeling assured that the duty is well done and believing that the life of the patient will be saved." But, for reasons which must be obvious, he was in many cases compelled to stop short of the 24 ounces and then "would retire a disappointed and downcast man" because, as he says, "When I leave such a person I leave her, little hoping that she will be saved."

In 1847 Ignaz Semmelweiss,* a young assistant physician in one of the large Vienna maternities, became imbued with the idea of the essential identity of puerperal fever and the surgical affection then termed pyemia. He was convinced that the dreadful mortality of nearly 15 per cent. among the patients under his care was caused by an infection carried by students who came from dissection or autopsy direct to the examination of the puerpera. He clearly stated his position, saying: "I consider puerperal fever, without the exception of a single case, as caused by the absorption of decomposed animal-organic material." . . . "The bearer of the decomposed animal-organic material may be anything which is soiled by this material and comes in contact with the genitals of the patient." You are all aware how, after an attempt was made to destroy these putrid matters by washing the hands with chloride of lime as well as the usual soap and water, the mortality immediately fell to a point lower than ever before in the history of the institution.

The new doctrine of Semmelweiss abroad, as Holmes' idea here, was received with derision or apathy, and it was only after the development of bacteriology and of the principles governing the antiseptic and aseptic treatment of wounds that his idea gained wide support and appreciation and became the foundation of the exact knowledge of to-day.

Now we *know* that puerperal fever is always puerperal infection, and that, with rare exceptions, this infection is by the hands or instruments of midwife, nurse, physician, or the patient herself. We cannot shift this responsibility by the excuse of auto-infection, for since the careful work by Williams, and Kronig and Menge have shown the practical absence of pathogenic organisms in the vaginal secretions, we know that auto-infection must be extremely rare.

Of the various organisms causing puerperal infection, of the forms of the disease, of its treatment, it is not my part to speak.

My endeavor is to place before you a picture, indefinite and fragmentary though it be, which will bring to you a realization of the advance that has been made in our knowledge of the cause of the dread childbed fever of the past, the puerperal infection of the present. This knowledge, accurate and sufficient, when properly used, has

* Puerperal Fever as a Private Pestilence. New England Quarterly Journal of Medicine and Surgery, April, 1843.

† Nature, Signs and Treatment of Childbed Fevers, by Chas. D. Meigs, M.D., Philadelphia, 1854.

* Semmelweiss, die Ætiologie, der Begriff und die Prophylaxis des Kindbettfiebers, Leipzig, 1861.

enabled those surgeons who are in charge of the large lying-in institutions to almost banish puerperal sepsis from those under their care and to reduce its death-rate to an insignificant fraction of a per cent. But how is it in the general practice of our profession; have we all taken the lesson to heart; have we learned the measure of its importance and applied its precepts? To our sorrow and shame be it said that the mortality and morbidity of this infection, that we know to be preventable, has among the masses of the people scarcely been lessened from what it was a century ago.

From the records of this city we find that during the three years, 1900, 1901, and 1902, the deaths among the entire population were 209,704. During the same period the deaths recorded as from puerperal disease were 2,001, or nearly 1 per cent. of the entire number. From this you must draw the startling conclusion that one death in twenty-five among women during the child-bearing period is from a puerperal cause, and the greatest of these causes is infection. These facts seem almost incredible, but must impress their importance on your minds.

Three times within the past fortnight have I been called to the assistance of a brother practitioner and have found the mother of a wailing child, with eyes that looked from out the shadow of the wing of Israfil. And how, if your heart-strings become as the lute of Israfil, played upon by chill and numbing fingers, as you look upon the silent lips, the cold and rigid form of her that had been most dear to you, lost when she should have been the dearest. I can truly say with our immortal Holmes: "It is as a lesson rather than a reproach that I call up the memory of those irreparable errors and wrongs. No tongue can tell the heart-breaking calamity they have caused; they have closed the eyes just opened upon a new world of love and happiness; they have bowed the strength of manhood into the dust; they have cast the helplessness of infancy into the stranger's arms, or bequeathed it, with less cruelty, the death of its dying parent. There is no tone deep enough for regret, and no voice loud enough for warning. The woman about to become a mother, or with her new-born infant upon her bosom, should be the object of trembling care and sympathy wherever she bears her tender burden or stretches her aching limbs. The very outcast of the street has pity upon her sister in degradation, when the seal of promised maternity is impressed upon her. The remorseless vengeance of the law, brought down upon its victim by a machinery as sure as destiny, is arrested in its fall at a word which reveals her transient claim for mercy. The solemn prayer of the liturgy singles out her sorrows from the multitude of trials of life, to plead for her in the hour of peril. God forbid that any member of the profession to which she trusts her life, doubly precious at that eventful period, should hazard it negligently, inadvisedly or selfishly."

34 West Forty-fifth Street.

SUBLAMINE IN THE TREATMENT OF PARASITIC SCALP DISEASES.

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My attention was first called to sublamine as a substitute for mercuric chloride some eighteen months ago. It was claimed for it that it was fully equal to the older preparation in bactericide energy, that it had greater powers of tissue penetration, and that it had no caustic or irritant effects upon the skin. It at once occurred to me that if these claims were substantiated, the new drug had a most important sphere of usefulness open to it not only as a general external antiseptic for the surgeon and patient, but also as a remedy in various parasitic dermatoses, and for the internal and external treatment of syphilis.

For if mercuric chloride is still our most important disinfectant and parasiticide remedy and the most active drug at our disposal for the treatment of lues, it is because its properties are so valuable that we are obliged to employ it in spite of its many inherent disadvantages. It is poisonous, caustic, and irritant in the highest degree, as the skins of surgeons, nurses, and patients bear abundant testimony to. These drawbacks limit its usefulness in parasitic affections, and make sublimate injections our last resort instead of the regular and most efficacious treatment in syphilis.

The search for a mercurial preparation that possesses the powers of the bichloride without its disadvantages has been unremitting. The most promising field has been the organic combinations of the metal, where valuable remedies have already been discovered. It cannot be claimed, however, that any one of them possesses the bactericide and antiluetic energy of the original preparation.

On the other hand, disadvantages similar in kind if not in degree have been overcome in the cases of silver and the cresols by their combination with ethylendiamin; argentamine and kresamine possessing all the active powers of the two drugs with a minimum of their drawbacks. Schering's, to whom we owe these compounds, has tried to produce a similar mercurial combination, and finally succeeded in making an ethylendiamin citrate of the drug. This was found to be an efficient disinfectant and antiseptic, and to have distinct and marked advantages over corrosive sublimate. But it is a fluid, and therefore not convenient for handling and transportation. The sulphate of mercury, however, which is fully equal to the bichloride in all valuable properties, forms a solid compound with ethylendiamin. It has, therefore, been selected as the standard ethylendiamin mercuric compound, and has been given the name of sublamine.

The chief disadvantage of the bichloride lies in its irritant and caustic action when employed in efficient concentration. Even a 1 in 1,500 solution often causes too much inflammatory reaction,

and many skins are so sensitive to the mercury that it cannot be employed in any effective concentration at all. Besides this, sublimate solutions coagulate the albumin of the tissues; which limits the penetrative powers of the drug, and circumscribes its activity. It is claimed for the ethylendiamin sulphate of mercury that it is absolutely non-irritant, so that even a two-per cent. solution may be used if required; and that, since it does not coagulate albumin, its penetrant action is far greater than that of the older drug.

Both the new drugs have been investigated by competent authorties with results that in the main substantiate the claims that are made for them. Kroenig and Blumberg, Schenck and Zaufal, Paul and Sarwey, Moir, and others have published papers, clinical and experimental, upon the subject. The former work, however, has been almost entirely in the line of the employment of sublamine as a disinfectant for the surgeon's hands and the patient's skin; in which field, apparently, it is destined to replace corrosive sublimate. It has been little used as yet in specific and non-specific dermatoses. Antoni, of Stockholm, and Reinecke, of Halberstadt, have stated that they have employed it satisfactorily in these affections; but I am not aware that they have published any detailed accounts of their observations. Josef Frank, Assistant at Dr. Emil Senger's Clinic for Surgery, Gynecology and Diseases of the Skin, at Crefeld, has used it in various forms of eczema with good results; and also in place of the corrosive chloride for subcutaneous injection in 1 in 500 solution without the addition of sodium chloride. He expresses himself as highly pleased with its effects; it caused no irritation at all. This, so far as I can ascertain, is all that has been published so far (April, 1903) except in the line of surgical disinfection.

During the winter of 1901-2 I have had occasion to employ both the citrate ethylendiamin of mercury and sublamine on a large scale in certain cutaneous affections. An epidemic of ringworm broke out in a large orphan asylum to which Dr. George H. Fox and I were the dermatological consultants. The matter was not brought to our attention until the epidemic had assumed alarming proportions. Some 450 out of the 900 children in the institution were found to be infected. Many of them had it, of course, in light form; but there was a large proportion of cases of deep infection and kerion.

The serious nature of such a state of affairs is well known to those who have had charge of institutions of the kind. Ringworm of the scalp is not, under ordinary circumstances, an important affection; but even under the most favorable surroundings, and all the help that careful treatment and attention can give us, it lasts for months, and often taxes our therapeutic ingenuity to the utmost. In public practice the majority of cases are not cured at all. They go from clinic to clinic, getting now a little better and now a little worse; until, finally, the age of puberty is reached, and the malady cures itself. Meantime these children are excluded from school and grow up in the streets.

In a public institution, overcrowded as this one was in spite of the incessant efforts of the Consulting Board to prevent it, such an epidemic may cause ruin. A similar one, some years before, had nearly led to its permanent closure. Unremitting effort and the expenditure of a large amount of money is required to stamp it out.

The diagnosis was confirmed in cases selected at random from the various wards and buildings by microscopical examination and cultures; and a laboratory was organized where both methods could be systematically employed to control results. Proper isolation was enforced; observation wards, in which apparently cured cases were kept for three weeks without treatment, were instituted and no case was discharged until repeated examination and culture had proved its entire freedom from disease. A staff of nurses was provided, and the necessary sanitary and therapeutic arrangements were made. Additional medical assistance was engaged; and I transferred 150 infected girls to my skin service at Lebanon Hospital, where an efficient house and nursing staff were at my disposal.

The patients were divided into squads of varying size in accordance with the size of the rooms at our disposal, and put on various plans of treatment. The basis of all of them was the same. Every head was closely shaved once a week as soon as the inflammatory symptoms had subsided sufficiently to permit it; a barber being employed to devote his entire time to the children. Twice daily each head was thoroughly scrubbed with a brush, green soap, and hot water. Proper arrangements for the cleansing and sterilization of the barbers' and nurses' appliances and hands were made.

The plans of treatment instituted included the use of chrysarobin, formalin, croton oil, bichloride of mercury, carbolic acid, iodine and the two new combinations, the ethylendiamin citrate of mercury and the sublamine, in various strengths. I made a most determined effort to have proper records kept; for here was a chance to make comparative tests on a large scale, and to determine which plan of treatment gave the best and quickest results. A just criticism of the records of results in other similar epidemics is that they give only general impressions, and do not deal with figures.

Nevertheless, I must confess that we were not very successful. The difficulty in getting attendants of the ordinary kind to carry out a troublesome treatment for such long periods of time with unremitting devotion was almost insuperable. The members of the staffs and the assistants did their best; but the task was often discouraging. The great lack of discipline in the institution, and the fact that in many cases the very names of the children were unknown to the attendants, or imperfectly or improperly known, or interchanged, helped to create confusion. The patients were scattered in four buildings and at least a dozen different wards; and the lack of room necessi-

tated incessant transfers and retransfers of well and sick children. Changes in the staff and servants further complicated matters. Hence, after nearly a year, when the epidemic was practically ended, and the number of cases had sunk to the proportion usual in institutions with a clientele of that kind, the records were in a very unsatisfactory and fragmentary state.

Chrysarobin was soon abandoned for various reasons. It was impossible to keep the children from getting it into their faces and eyes, and we had a good deal of trouble with the dermatitis and conjunctivitis that it occasioned. Besides this the diffuse brown stain of the skin that it occasioned was a very serious obstacle to rapid examination of the affected heads. Each patient was examined daily, so that each physician had a considerable number to see to. The coloration doubled the time required, and greatly increased the strain upon the examiner. Chrysarobin is a good application for private practice, where one or two heads only are to be cared for, and where suitable protective bandaging can be employed. It is not suitable, however, for the treatment of large numbers of cases in institutions.

We found the same objection to iodine. This in combination with goose grease, has been highly recommended of late by Dr. Jackson, of this city, and it is undoubtedly an effective preparation. The menstruum is comparatively expensive, however, for use on a large scale, and the general coloration that it occasioned was a disadvantage. At Dr. Fox's suggestion a number of cases were put upon it; but we were soon compelled to change the treatment.

No definite results were obtained from the use of salicylic acid in any form and concentration, and its use was abandoned after a time. The same is true of carbolic acid, which was used pure, alcohol being employed after it when it seemed too irritating. Pure formalin was used in a number of cases by one of the house physicians without my consent; it cured the patches to which it was applied, of course, but at the expense of sloughing, ulceration, and destruction of scalp tissue. It was stopped at once, of course. In 10-per-cent. solution, which was well borne, it did not seem to make much change in the patches. We finally came down to the use of three drugs only, which we found sufficient for all cases, viz.: the bichloride, sublamine, and croton oil.

The ordinary mercuric bichloride was usually employed in 1 in 1,000 solution; but many cases could not stand its vigorous use twice daily in this strength, and it had to be diluted. In many cases 1 in 2,000 only could be used. Its effect was very slow, probably on account of deficient penetration; but we persisted in its use for purposes of comparison. In most cases we finally had to have recourse to 33 per cent. croton oil. This was applied several times in succession until a vigorous reaction took place. Then an ordinary soothing application (usually 3 per cent. salicylated oil) was used until the inflammation had subsided, and the bichloride was employed again.

Of the ethylendiamin preparations we employed the solid sulphate, sublamine, most largely; but a good many cases were treated with the fluid citrate. The latter was the only preparation obtainable at the time that the epidemic began; but since the properties of the two are the same, they can be considered together. We found them much less irritant than the bichloride. All the patients stood a 1 in 1,000 solution very well indeed; and in obstinate cases a 1 in 750 solution was used without trouble. Stronger solutions than that, however, gave trouble. It is possible, of course, that the shaving and scrubbing rendered many of the scalps hypersensitive. I cannot confirm the claim of absolute non-irritancy for the drugs. But they are much less obnoxious to tender or inflamed skins than the bichloride, and can be used at about twice the strength permissible for the latter.

Over 100 cases in all were treated with sublamine. As with the other plans of treatment, these were not selected cases, but included cases in all stages of the affection; some had merely a single small patch, while others were in an advanced and generalized stage of the disease. In this latter class were a number of cases in the older children who had had ringworm of the scalp for years, and whom we suspected with good reason to be uncured cases left over from the epidemic of several years ago. They had been at Randall's Island, the city institution for orphans thus affected, for months and years, and had been sent back to the asylum as cured. That this was not the case, however, is shown by the fact that some of them formed part of the contingent of chronic scalp cases that were always present in the asylum, and which undoubtedly formed the nucleus of the present epidemic. Some of these cases were not cured at the time when the epidemic ended. I believe that they belong to the small number of really incurable cases, and that their retention in the institution will lead to future trouble.

All the others did very well indeed under the sublamine treatment. Its action was more rapid than that of the bichloride, as might be expected from the facts that it had equal bactericidal with greater penetrative power, and that it could be employed in very much stronger solution. For the reasons already stated I am unable to give figures as to the time required for cure. But there can be no doubt that it was the most effective of the various methods of treatment employed.

Two other points of interest remain to be noted. The first is in connection with the microscopical and bacteriological test for the presence of ringworm. I was ably assisted by Dr. W. G. Eckstein in this part of the work at the beginning of the epidemic, and a number of apparently healthy heads were examined as well as those that were visibly affected. The astonishing fact was noted that a parasite indistinguishable from that of ringworm could be cultivated from scalps that were apparently perfectly healthy. The tri-

chophyton was seemingly present on most or all of the scalps of the children of the institution, possibly in an attenuated or non-virulent form. Perhaps it was the usual form kept in depressed growth by the prophylactic measures detailed below. At all events our appreciation of the fact necessarily led us to abandon the bacteriological test of cure after a time, and we finally came to rely on the macroscopic evidences alone. Cases in which repeated cultures had been made with negative results, and which were therefore discharged as cured, gave positive cultures later, though their scalps were apparently perfectly healthy.

The prophylactic measures employed for the protection of the healthy chldren were as important as the remedial ones used for the sick. There were peculiar difficulties in the way of their employment owing to the fact that most of the children had to go to school, and, it being winter, had to wear caps. It was impossible to prevent interchange of head covering; and this was a serious matter in the early days of the epidemic, when new cases were contnually being discovered. Two sets of plain cloth caps were provided, one of which was in the steam sterilizer while the other was being worn. Every morning the fresh caps were distributed, and were collected again in the afternoon when the children came from school.

All the heads were kept cropped, the closest clipper being used on them at least once in two weeks. Each head was thoroughly washed every morning with bichloride, 1 in 3,000, in green soap lotion, rinsed, dried, and then well inuncted with a 3 per cent. salicylic acid oil. This was disagreeable, and objected to both by the children and the public school authorities; but it was effective. The new cases discovered became fewer and fewer, and finally ceased altogether. There was an immediate recrudescence of the epidemic, and the appearance of some score or more of new cases, when one of the lay authorities took it upon himself to discontinue the oil inunctions for a few days. This confirmed me in the opinion that during the prevalence of an epidemic of this nature in an institution all the inmates' heads must be regarded as infected. Finally, every head in the institution was thoroughly examined by an expert twice a week, so that beginning cases could be at once detected, isolated, and treated.

Of course, no ringworm epidemic of such an extent could occur under proper management. Overcrowding and want of care in the admission of children, as well as insufficient supervision were its causes.

The Bactericidal Action of Ultraviolet Radiations.—In a series of experiments on the effect of exposure to the arc spectra of carbon and of various metals in the vitality of bacteria, J. E. BARNARD and H. DE R. MORGAN (Proc. of the Royal Soc., July 31, 1903) found that the bactericidal action of light is almost entirely due to the action of those radiations in the ultraviolet region of the spectrum, which are included between the wave-lengths 3287 and 2265.

THE IMPORTANCE OF THE SURGICAL TREATMENT OF CHRONIC MIDDLE-EAR SUPPURATION.*

BY EDWARD BRADFORD DENCH, M.D.,
OF NEW YORK.

IT is with some hesitancy that I present before this body of eminent physicians and surgeons a paper upon the subject of aural suppuration. The importance of the early recognition of this condition, and its relief by appropriate measures of treatment, is fully appreciated by every clinician. To those who see a large number of cases, of all kinds, both medical and surgical, in the various large clinics and hospitals, the presence of an aural discharge is perhaps, of such common occurrence, and is so rarely attended by severe symptoms, that even the most careful may overlook, in many cases, the possible significance of this symptom.

If we turn to the pathological records, we find that Pitt (*British Medical Journal*, 1890, Vol. I, p. 634) reports in 9,000 consecutive autopsies at Guy's Hospital, between the years of 1869 and 1888, 57 cases of death due to aural suppuration; that is, one in every 158 autopsies.

Gruber (*Monatsschrift für Ohrenheilkunde*, 1896, p. 311) in a report of the autopsies held at the Vienna General Hospital, between January 1, 1873, and December 31, 1894, gives the number of autopsies as 40,073; death was due to aural suppuration in 232 cases or in one case in every 173 was death due to aural suppuration.

Poulson (*Archiv für klinische Chirurgie*, Vol. LII, Section 2), out of 14,580 autopsies at the hospital in Copenhagen, extending over a period between the years 1870 and 1895, found death due to aural suppuration in 48 cases or, in other words, in one case in every 303 was death due to aural suppuration.

Barker [Hunterian lectures], (*Illustrated Medical News*, London, 1889), gives the following statistics: in three of the London hospitals, during twelve years, there were 8,028 deaths. In 45 of these cases death was due to aural suppuration.

These figures show, with a fair degree of accuracy, perhaps, the part played by aural suppuration as the cause of death in a large number of cases dying in the general hospitals. While the total number of cases is not large, the number is certainly sufficient to demonstrate the danger of disregarding in any instance the presence of a chronic discharge from the ear.

From the statistics of Bürkner (*Archiv für Ohrenheilkunde*, Vol. XX, p. 81) we find that out of 33,017 cases of aural disease of all kinds, coming under his observation, 104 cases died from the effects of aural suppuration.

Randall (Transactions of the American Otological Society, Vol. V, Part I, p. 101), out of 5,000 aural cases, reports 15 deaths due to middle-ear suppuration.

Turning now to the reports of the New York

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*Read before the New York Clinical Society.

Eye and Ear Infirmary, I find that during the past eight years 64,858 aural cases have been treated in this institution. Among these, there have been 20 cases of cerebral abscess, 46 cases of sinus thrombosis, and 24 cases of sinus thrombosis in which the internal jugular has been ligated, 119 cases of epidural abscess, 7 cases of cerebellar abscess, and two cases of otitic meningitis. These records are accurate, excepting as regards the cases of otitic meningitis. A careful record of these latter is not found in the reports, as many were not subjected to operative procedures, and have consequently, not been reported in the statistics of the hospital. These statistics show conclusively, I think, that aural suppuration constitutes a serious menace to life. It must be remembered that in my own statistics, as well as in those of Randall and Bürkner, all cases presenting at the clinic, for any cause whatsoever, have been included in this report; these include cases of impacted cerumen, inflammations of the external auditory canal, congenital malformations of the ear, in fact, every aural lesion is included in the total number of cases admitted to the clinic. In my own statistics, that out of 64,000 cases, 218 should have had intracranial complications, seems a very significant fact.

In analyzing these statistics more closely we find that during the past eight years, out of 64,858 cases treated at the clinic, the diagnosis of acute purulent otitis media was made in 4,836 cases, and that of chronic purulent otitis media in 14,487 cases. In other words, 19,323 cases of purulent otitis media, both acute and chronic, have presented themselves for treatment during the past eight years. In 218 cases, according to the statistics given above, serious intracranial complications were present, or about one case in every 88 of all purulent cases presenting at the dispensary, suffered from some severe complication. This number of serious complications seems to be rather large. The figures must be considered as being fairly accurate, however, as they are spread over a number of years, and represent the work of a number of different men, and not that of one individual.

It behooves not only the aural surgeon, but the general practitioner as well, to appreciate the grave menace to life which a purulent otitis causes and to protect his patient in every instance, by the early institution of such measures as may completely eradicate the disease in question. It may be argued by many present that they have seen numerous cases of aural discharge, lasting through a long life, the patient subsequently dying of some intercurrent disease. While I grant that out of the total number of cases of purulent otitis which may come under the observation of any one man, only a comparatively small portion will be followed by any fatal issue, I do contend that it is the duty of the physician to constantly bear in mind the grave consequences which may follow a neglect of this condition. A case which recently came under my observation, illustrates this statement. A young girl of fifteen years came under the observation of one of my assistants, suffering from a purulent otitis media upon the right side. The discharge had existed since infancy. Under aseptic irrigation and the application of mineral astringents the discharge diminished in quantity, the mucous membrane lining the tympanic cavity became less swollen and congested, and the remnant of the drum membrane became practically normal in color. The last time the patient was seen, there was very little discharge, and the ear was giving the patient absolutely no trouble. An examination revealed a large perforation involving the lower two-thirds of the drum membrane. About four days after the patient's last visit to the clinic she had a severe chill, followed by headache, and she came immediately to the hospital. She was admitted and at the time of admission the temperature was 103° F.; two hours later the temperature was 104° F. I examined the patient at this time and found the ear perfectly dry. There was a large perforation in the lower part of the drum membrane, as already noted. There was absolutely no redness or tumefaction of the upper portion of the membrana tympani and no swelling of the inner extremity of the external auditory meatus, close to the drum membrane, a condition almost invariably present when there is an involvement of the mastoid process. The patient complained of a moderate amount of headache, but said she did not feel very ill, and sat up in bed during the examination. She responded to questions perfectly. There was only slight tenderness on pressure over the mastoid antrum and no tenderness over the mastoid emissary vein. When I first examined the patient, I did not believe that the temperature of 104°F. was due to the condition in the middle ear; three hours later the temperature rose to 105.5° F. As no further symptoms were present, aside from the headache, local tenderness and the temperature, I decided to do an exploratory operation upon the mastoid, although, at that time, I hardly thought the temperature was due to a deep infection from the purulent otitis. The patient was prepared in the ordinary way and placed upon the operating table. On entering the mastoid antrum, there was a gush of thin and extremely offensive pus from the opening in the bone. This opening was enlarged and the fluid in the bony cavity was then seen to pulsate distinctly. A still further removal of the bone showed that not only were there involvement of the mastoid antrum, but also that the internal and posterior wall of the antrum had been eroded so as to expose the cerebellar dura and the dura covering the lateral sinus. The mastoid antrum and tympanic vault were filled by a mass of cholesteatomatous material. The first procedure was to perform a complete radical operation, throwing the mastoid cells, the middle ear and the external auditory meatus into one large cavity. All softened bone was removed by the curette. The dura over the lateral sinus was then examined. The sinus was prominent and did not pulsate. Incision of the sinus wall showed that the vessel was filled

by a soft clot; this clot was removed by the curette, and free hemorrhage from above followed. A smaller curette was passed downward into the sinus toward the jugular bulb, and the clot was removed as perfectly as possible. No hemorrhage, however, occurred in this direction. The inner sinus wall was discolored and protruded into the lumen of the sinus after the vessel had been opened, as though there was fluid beneath. I felt that I had to do with an abscess of the cerebellum, and incised through the inferior sinus wall directly into the cerebellar substance. A little softened brain matter was extruded through the incision. Incision with a narrow knife into the cerebellar substance and the careful use of the grooved director failed to reveal any purulent focus. I then sutured the internal sinus wall carefully, so as to close up the opening into the cerebellum. As there had been no hemorrhage from below, I next proceeded to expose the internal jugular in the neck through an incision running from a point just above the clavicle to the tip of the mastoid. The jugular contained fluid blood throughout its entire extent. At its upper portion and close to the bulb, however, the wall of the vein was very much thickened. The vein was secured low down in the neck between two ligatures, and was then dissected out completely, all tributary branches being doubly ligated and divided between the ligatures. A second ligature passed about the vein close to its entrance into the skull, and the vein was then divided below this and removed. The wound in the neck was completely closed by silkworm gut and silk sutures. The wound in the soft parts, exposing the sinus and cerebellum, was partially closed by means of silkworm gut sutures. The mastoid wound had been thrown into the external auditory meatus by the removal of the posterior wall of the bony canal, and was packed with iodoform gauze. A large dressing was then applied and the patient returned to bed. The temperature immediately fell to about 101° F., and did not rise beyond 101.5° or 102° F. after this. The first dressing was removed on the sixth day, and the wound in the neck was found to have united throughout by first intention. The incision in the dura had also healed perfectly. The patient made an absolutely perfect recovery. The temperature was normal at the end of the first week, and never rose above this point. This patient is perfectly well to-day, and is able to attend to her duties at the Normal College, where she is a pupil.

I have reported this case somewhat in detail as it shows how exceedingly treacherous is the disease under consideration. I might add that, the night before the patient was seen with these acute symptoms she was in absolutely perfect health and attended a wedding reception, returning in the early hours of the morning.

While the case last reported seems to be somewhat striking, a number of cases in which the onset of the symptoms has been sudden, have come under my own observation. In a case reported at the American Otological Society, in July, 1896, the patient was a man sixty years of age, who twenty years before had suffered from a double suppurative otitis following typhoid fever. For twenty years the ears had given him no trouble until about five weeks before I saw him. At this time he was seized with a severe vertigo and a feeling of fulness in the side of the head. The disturbance in the equilibrium was so marked that he was obliged to stop his work, and was confined to bed for several days. The acute symptoms disappeared, to a certain extent, in a few days. The pain in the left side of the head and the left ear, however, continued. The patient was under observation for about two weeks, during which time the temperature was normal. Suddenly the temperature began to rise and fluctuate between 102° and 104° F. The cranial cavity was opened just above the temporal ridge and the tympanic roof exposed. There was some roughening of the bone in this region, and the introduction of a director along the tympanic roof evacuated a large amount of bloody serum. A dural flap was turned down, and the brain substance explored, with negative results. The dural flap was therefore, replaced and held in position by sutures. A packing of iodoform gauze was introduced between the dura and the tympanic roof. The angles of the wound in the soft parts were sutured, the usual dressing applied, and the patient returned to bed. The temperature immediately fell after the operation and patient made a complete recovery.

In this case, a suppurative otitis had remained quiescent for a period of twenty years, and for some unknown reason, had suddenly caused an infection of the meninges and given rise to acute symptoms, which would undoubtedly have terminated the patient's life, had not prompt operative interference been undertaken.

In a third case, which came under my observation three years ago, the patient presented at the hospital, in the service of one of my colleagues, suffering from an acute exacerbation of a chronic purulent otitis. There was some evidence of mastoid involvement and it was at first thought that operative interference would be necessary. An effort was made to abort the acute symptoms by the use of the ice-coil. After the patient had been in the hospital for a couple of days, he developed an acute pneumonia. Although there was sufficient mastoid tenderness to warrant operative interference, this was deemed unwise on account of the condition of the lungs. When the pneumonic condition in the lungs had resolved, all mastoid symptoms had disappeared. There was still a discharge from the ear, however, when the patient left the hospital, and he was instructed to irrigate the ear several times daily until the discharge disappeared. About two months after he left the hospital he was brought back to the institution in a comatose condition. From his relatives it was learned that he had been in his usual health the day before; suddenly he had what seemed to be a convulsion and then became coma-

tose. At the time that I saw him, it was impossible to rouse him. The patellar reflexes were abolished, the plantar reflexes diminished, and the pupils did not respond to light. Ophthalmoscopic examination showed the left optic disc choked. Rectal temperature, at admission, was 102° F. As I was convinced that I had to deal with a cerebral abscess, I opened the cranial cavity just above the external auditory meatus, and explored the temporosphenoidal lobe. I should add, that as the first step of the operation, a complete mastoid operation was performed; but no opening being found through the tympanic roof, the cranial cavity was entered above the temporal ridge, as already described. On raising the dura from the tympanic roof, it was found to be slightly discolored. A curvilinear incision was made through the dura and a dural flap reflected. The cerebral substance immediately bulged into the dural opening. A director was then passed into the brain substance, and after having entered for a distance of an inch and a half, a little pus was seen to flow along the groove in the director. With the director still in position, a sharp knife was passed into the brain substance, evacuating pus and considerable softened brain tissue. The finger was then inserted into the abcess cavity, which was about the size of a pigeon's egg, and was found to be filled with broken-down brain tissue. The abscess was completely evacuated, and the cavity packed with sterile gauze. The patient recovered, although a second abscess cavity was subsequently developed, anterior to the first, and communicating with it. The patient made a complete recovery. Subsequently, I was obliged to do a radical operation upon the ear, for the relief of the middle-ear suppuration, which still persisted.

The insidious course which characterizes many cases of intracranial infection, due to a suppurative otitis, is well illustrated by the following history: A young lad came under my observation at the New York Eye and Ear Infirmary last year. He presented at the clinic with all the characteristic symptoms of an acute mastoid inflammation. The boy was immediately placed upon the operating table, and a large postaural abscess was opened. This was found to communicate directly with the mastoid cells, and a complete mastoid operation was performed. I was very careful at the time to remove, as I thought, every vestige of diseased bone. The entire mastoid was taken away, and its entire cellular structure obliterated. Examination with the probe and the finger revealed hard bony walls in every direction. The patient was returned to the ward in good condition. The temperature, which had been somewhat elevated at the time of his admission, fell to about normal and remained so. The wound was first dressed on the fifth day. On removing the dressings, I found these to be very foul; considerable pus was present in the dressings, and the odor from the wound was exceedingly disagreeable. I remarked this at the time, and examined the wound again very carefully, but could find no solution of continuity in the bone. The temperature had remained normal ever since the operation; the child had no pain, but had been very quiet. He slept a good deal of the time, but roused easily when spoken to, answered all questions intelligently, and seemed to be progressing favorably. On the day after the first dressing the temperature suddenly rose to 104.5° F., in the morning, and at noon the boy was dead. Autopsy revealed a large cerebellar abscess. At one point, corresponding to the sigmoid groove in the mastoid, there was a minute perforation, leading directly into the abscess cavity. This had evidently been overlooked at the time of the operation and at the time of the first dressing. I report this case simply to show the great care which is necessary in the conduct of what seems to be a simple mastoid operation. Of late I have been removing so much bone in mastoid operations that I have frequently thought that I had passed beyond the limits of diseased tissue, and that a little more conservatism would be advisable. This case would seem to show, however, that to err upon the side of removing healthy bone is exceedingly wise. Had I removed the thin internal table of the skull covering the sinus, I should have discovered the cerebellar abscess, could have evacuated it, and could probably have saved the patient's life.

Another case, with a history practically identical with the above, occurred in the service of one of my colleagues only a few weeks after.

These histories have been taken at random from my operation book, but show clearly, I think, how careful the surgeon must be in dealing with a suppurative process within the middle ear, especially in those cases in which the suppuration is chronic. From the statistics which I have given it seems fair to suppose that over one per cent. of all cases of chronic suppuration will develop some severe intracranial lesion.

The time allotted to me will scarcely be sufficient to cover the entire subject. I shall, therefore, ask you to consider with me those measures which seem most advisable for the cure of chronic suppurative otitis media as, by the early institution of such measures, we are able to remove all danger of intracranial involvement. In order to absolutely protect these patients against the danger of intracranial complications, it is necessary for the surgeon to remove all diseased bone from the middle ear and the adjacent pneumatic spaces. In cases where extensive intratympanic caries is present, this is only possible by first entering the mastoid antrum by means of a free incision behind the ear. After the mastoid antrum is entered, the communicating wall between the mastoid cells and the middle ear, that is, the posterior bony wall of the external auditory canal, should be broken down. The next step is to expose thoroughly the upper portion of the tympanic cavity, that is, that part of the middle ear which lies above the superior wall of the bony meatus. This is known as the tympanic vault, or the attic of the tympanum, as it is sometimes called. After this rather extensive

operation on the bony parts, the external auditory canal and the middle ear, the mastoid antrum and cells are converted into one large cavity. One large bony cavity is thus formed, whose walls can be closely inspected by means of reflected light, or by direct illumination, in most cases, and every vestige of diseased bone can be removed. In performing such an operation, the surgeon should not stop until all softened bone is removed. Certain important structures are exposed during the operation, and serve as landmarks to guide the surgeon in completing the procedure. These structures are, the horizontal semicircular canal and just below it, the aqueductus Fallopii, lodging the facial nerve. Further backward and lying more deeply, we sometimes expose the posterior semicircular canal.

While I do not wish to go too much into detail in describing the radical operation for the relief of chronic middle-ear suppuration, it seems necessary to describe the procedure somewhat *in extenso*, in order to present more clearly the objects to be accomplished by the operation and the comparative simplicity of the procedure, if properly conducted. The incision through the soft parts is made from the tip of the mastoid process upward and backward over the mastoid cortex, and about one-half an inch behind the line of auricular insertion. This incision follows the line of auricular attachment to a point just above the insertion of the auricle. The incision is then extended horizontally forward for about three-eighths of an inch. Bleeding points are grasped with clamps, and the anterior flap, including the auricle, is crowded forward, exposing the upper, posterior and inferior margins of the bony meatus. The anterior flap is then held in position by means of a retractor and the mastoid antrum entered just behind Henle's spine. After the antrum has been entered, the posterior wall of the external auditory meatus is broken down so as to throw the antrum and external auditory canal into one large cavity. As the facial nerve lying in the aqueductus Fallopii runs downward and backward through the mastoid process, the posterior wall of the canal cannot be broken down throughout its entire extent. It will be remembered that the aqueductus Fallopii and the horizontal semicircular canal together form a prominence on the inner tympanic wall at its upper and posterior portion,—this prominence corresponding to the floor of the *aditus ad antrum*, that is, the small channel leading from the middle ear into the mastoid antrum. In breaking down the posterior canal wall, a somewhat quadrilateral piece of bone should be removed. The base of this quadrilateral is outward and corresponds to the vertical diameter of the external auditory meatus. Its upper boundary corresponds to a line drawn from a point where the cortex is entered behind Henle's spine, inward to the superior wall of the *aditus*. The short side of the quadrilateral corresponds to the outer wall of the *aditus ad antrum*, and lies just beyond the prominence of the horizontal semicircular canal and aqueductus Fallopii; the lower boundary of the quadrilateral is a line drawn from the floor of the external auditory meatus to the floor of the *aditus ad antrum*. It will be seen that by the removal of this irregular wedge-shaped piece of bone, the prominence of the horizontal semicircular canal and of the aqueductus Fallopii will be thoroughly exposed, and that this exposure will permit of a free inspection of the *aditus ad antrum*. As the bone is removed from without inward by successive cuts of the chisel, the cutting instrument should be directed from below upward until the *aditus ad antrum* is reached. The upper border of the quadrilateral should be formed by deepening the bony cavity directly inward on a level with the superior wall of the meatus. In this way, the surgeon will expose the prominence of the horizontal semicircular canal and of the aqueductus Fallopii without injuring these structures. He will then be able to inspect the mastoid antrum, the *aditus* and the lower portion of the tympanic cavity. The next step in the operation is the removal of the external wall of the tympanic vault, that is, the inner extremity of the upper wall of the bony external auditory meatus. It will be remembered that the horizontal plate of the temporal bone, in this region, splits into two segments, and that between these segments is lodged the bodies of the ossicula. It is the removal of this lower plate of bone which exposes freely the tympanic vault and finally allows a free inspection of the entire tympanic cavity and mastoid cells. After the tympanic cavity has thus been freely exposed, the curette is used to remove all diseased bone and granulation tissue. The ossicula are almost always carious in these cases, and are removed by the curette. The internal tympanic wall must be carefully inspected and all softened bone removed by the curette. Great care should be exercised in carrying out this step of the procedure. The parts should be repeatedly dried by means of gauze pledgets, carried to the very bottom of the wound, and then the walls of the cavity thoroughly inspected by means of a good light. Every trace of softened bone must be removed in order to effect a complete cure.

We sometimes find that the disease has invaded the horizontal semicircular canal, or, less frequently, the posterior semicircular canal. The aqueductus Fallopii may also show some evidence of softening. The operator is to remove softened bone in this region quite as freely as in the neighborhood of less important structures. It is useless to perform an operation of this kind and to leave any softened bone, although in its removal the horizontal semicircular canal may be opened or the aqueductus Fallopii may be entered and the facial nerve exposed. By careful manipulation, even if the facial nerve is exposed, it can usually be protected from injury. The entire bony covering may be removed, and yet the nerve remain intact. In a case operated upon recently, I found caries involving the horizontal semicircular canal. I curetted this region very thoroughly, and asked the attending physician, who was present, if there had ever been any attacks of vertigo. He assured

me that the patient had complained of none. A few days after the operation on questioning the patient, I found that she had had a number of attacks of vertigo, which had been entirely forgotten by the medical attendant. These attacks were undoubtedly explained by the involvement of the horizontal semicircular canal. In this case no unpleasant symptoms followed the invasion of this region. After all diseased bone has been removed, the entire bony cavity is best lined by means of Thiersch grafts. These are held in position by small pledgets of cotton, the entire bony cavity being lined with the grafts, and the grafts held in position by these cotton plugs.

In order that all parts of this large bony cavity may be freely opened to ocular inspection during the healing process, it is usually necessary to enlarge the external auditory meatus. This is done, preferably by dividing the fibrous canal by means of a horizontal incision along its postero-inferior border. This incision is carried well out into the concha. After the knife has entered the concha, the incision is carried upward, dividing both the cartilage and integument of the concha to a point just below the anterior crus of the anthelix. The cartilage is then dissected out from this flap and excised. This concho-meatal flap is turned upward and backward and retained in position by means of catgut sutures, after which the auricle is replaced and the posterior wound sutured throughout, usually with silkworm-gut and silk sutures. In this way, the entire middle ear and mastoid cells are thrown into one large cavity, continuous with the external auditory meatus, and the entire cavity is lined with epithelium.

The results obtained in these operations have been extremely satisfactory. The first dressing is done on the fifth or sixth day, at which time the posterior wound will be entirely healed. In some of the cases the ear has been practically dry at the end of two or three weeks. It can easily be seen, from this description, that if the operation is thoroughly carried out and all diseased bone removed, there is no possibility of any further trouble with the ear, and the intracranial structures are absolutely protected from invasion. Out of 70 cases operated upon by this radical procedure 54 were cured, 11 improved and 5 are still under treatment.

In certain cases it is impossible to graft the cavity at the time of the primary operation. In these cases, the concho-meatal flap is made at the time of the primary operation, and the posterior wound partially closed by means of sutures. The middle-ear cavity is packed either with iodoform or sterile gauze. At the end of two or three days the gauze is removed, and if the bony cavity is healthy and there is no hemorrhage, an anesthetic is given, the grafts applied, and the posterior wound completely closed, in the manner already described.

In some instances it may seem unwise to employ grafting at all. In such cases the concho-meatal flap is made, the posterior wound sutured and the bony cavity packed through the external auditory meatus with iodoform gauze. The first dressing is made at the end of six or seven days, at which time the posterior wound will be found united, and the entire bony cavity covered with healthy granulations. In these cases the subsequent treatment consists simply in keeping this granulating surface cleansed by means of the aural douche, used once or twice a day, and the destruction of any exuberant granulations by means of the bead of nitrate of silver. Complete dermatization of the cavity takes place in these cases quite rapidly, although not as rapidly, naturally, as where the epithelial grafts have been used. From a rather extensive experience, this radical operative procedure seems to offer the best protection to the patient in all cases of chronic middle-ear suppuration. In making this statement I do not wish to be understood that I should advocate the radical operation in every case of chronic aural discharge. I have purposely given first the operative procedure to be employed in those cases where the destruction of the bone is extensive, and where the most radical measures are necessary. In some cases of chronic aural discharge, we find that this discharge is easily kept under control by cleansing the ear once or twice daily by means of a syringe. An examination by the probe shows that the caries is limited in extent. In these cases the operative procedure to be advocated is the removal of the carious ossicles and thorough curettement of the roof of the tympanum through the external auditory meatus. The inner extremity of the upper wall of the meatus may also be removed by small rongeur forceps, so as to enable a thorough curettement of the tympanic roof and of the tympanic end of the *aditus ad antrum.* This procedure is efficacious in the milder cases of chronic middle-ear suppuration.

I have upon my records a large number of cases operated on in this manner, in which, after a number of years, there has been no recurrence of the disease and in which the patients have remained in perfect health. Out of 92 cases operated upon 53 have been cured, 25 improved, 2 unimproved and in 12 the result is unknown. The disadvantage of the procedure is that, no matter how carefully conducted, it will not cure every case. The surgeon is quite often misled by his examination, and will believe that the intratympanic caries is confined to the ossicula and to those parts of the middle ear easily accessible through the external auditory canal. While the removal of the ossicula and curettage of the tympanic walls improves these cases and diminishes the danger of intracranial infection, it will not absolutely stop the discharge unless all diseased bone has been reached. This operation is justified in a certain proportion of cases, but the surgeon should usually warn the patient that this operation may not give him complete relief, and that, later, the more radical procedure may be necessary. The advantages which the simpler operation possesses are, in the first place, that the convalescence is more rapid, and that no external incision is neces-

sary. In the second place, this operation seldom, or almost never, causes any diminution in the power of audition. While interference with audition is rare, following the radical operation, it does occur, and if the hearing in the affected ear is good, the surgeon is frequently justified in advising the simpler procedure, in the hope that this may suffice to cure the suppuration, without running the risk of seriously interfering with the function of the organ.

We have still another class of cases of suppurative otitis to deal with, in which, before the case comes under observation, the suppurative process has practically run its course: intratympanic caries has occurred, the softened bone has been thrown off, and we have to deal simply with the results of an old suppuration. We frequently find, in cases of this character, that there is a large central perforation in the membrana tympani. The history of the case will be that the ear does not discharge continuously, but only when the patient takes cold. In these cases, a thorough sterilization of the ear as soon as the discharge appears, by mopping out the canal and middle ear with a mild antiseptic solution, and dusting a little boric acid over the internal tympanic wall, will frequently cause an immediate cessation of the discharge. The efforts of the surgeon, in cases of this character, should be to prevent these repeated congestions of the tympanic cavity. This is best carried out by attention to the upper air tract. In young children we frequently find this condition following the exanthemata; in these children enlarged tonsils and adenoid growths are very common. With a history of recurrent attacks of aural discharge, and with the presence of enlarged tonsils and adenoid growths, the surgeon should first restore the upper air passages to their normal condition, by removing the enlarged tonsils and the adenoid growths. In a number of instances, I have seen this operation followed by a complete cessation of the discharge from the middle ear, and the dermatization of the tympanic cavity.

In concluding my remarks, I would recapitulate as follows: In all cases of persistent and profuse aural discharge the radical operation is the operation of election. In cases of recurrent aural discharge, associated with lesions of the upper air tract, this tract should first be put in a normal condition.

In case of persistent but slight discharge from the ear, the operator may advise the removal of the carious ossicles, together with thorough curettement of the middle ear through the external auditory meatus. It should always be explained to the patient, however, that this operation is a tentative one, and that the more radical procedure may be necessary later.

New Memorial Hospital at Elkins, W. Va.—The Davis Memorial Hospital at Elkins, W. Va., built by ex-Senator Davis in memory of his son, who was drowned off the coast of Africa while touring the world, was opened October 8. The building was erected at a cost of $80,000.

MEDICAL PROGRESS.

MEDICINE.

Attempted Suicide with Typhoid Culture.—A recent case of attempted suicide by efforts to contract disease is reported by P. DUFLOCQ and R. VOISIN (Archives Generales de Médecine, Sept. 1, 1903), and serves as a laboratory experiment in typhoid inoculation. The woman had worked about a hospital, and shortly after her marriage put pieces of ice along her back and exposed herself to cold drafts of air, but the expected pneumonia failed to supervene. Later she became pregnant, and having seen a pregnant woman abort and die with typhoid fever, set to work to learn how she might contract the disease. She then secured two culture-tubes of typhoid bacilli and swallowed them. On the third day she had a violent headache and felt weak. The headache disappeared on the fifth day, but was followed by malaise, restlessness and loss of appetite. On the sixth day she remained in bed with weakness, headache and sore throat. On the seventh day the morning temperature was 37.6° C. and the evening 38.6° C., the sore throat was better, and there were abdominal pains. On the eighth day rose-spots appeared, and there was much prostration; there were two slight epistaxes. On the ninth day the abdomen was tender, not distended, spleen not felt; serum diagnosis rapidly positive, 1-15, but at 1-50 indefinite. The subsequent course was that of a severe typhoid infection, a récrudescence prolonging the disease. In spite of much pain about the uterus, the patient did not abort, but recovered and was subsequently delivered of a healthy infant at term. In this case the period of incubation was only two days, the period of invasion six days, but the rest of the attack was normal. This observation illustrates the specificity of the typhoid bacillus, and it is probable that the rapid development of the disease was due to swallowing such a large number of the bacilli, with their already prepared toxins.

The Left Auricle in Mitral Stenosis.—Upon the modifications which the left auricle undergoes in mitral stenosis depend the symptoms, evolution and complications of that condition, writes H. VAQUEZ (Trib. Méd., Aug. 29, 1903). The compensatory hypertrophy of the left auricle may increase the normal capacity of that organ—35 to 40 c.cm.—to 150 c.cm.; and Rigaud has reported a case in which it approximated the dimensions of the fetal head. The normal limits of the left auricle may be defined posteriorly, according to Potain, by percussion within an area bounded internally by the spinal column, externally by the vertebral border of the scapula, above by a horizontal line on a level with the spinous process of that bone and below by its inferior angle. The area of dulness embraced within these limits measures 75 to 78 mm. in the vertical and 25 to 30 mm. in the transverse diameter. In mitral stenosis, this area of dulness may be increased to 120 mm. in the vertical and 65 in the transverse diameters. The author especially emphasizes this point in the differentiation of the single lesion—mitral stenosis—and mitral stenosis accompanied with aortic insufficiency; percussion being negative in the latter, while demonstrating auricular hypertrophy in the former condition. A symptom which Vaquez has frequently noted in mitral stenosis is pain in the back, located between the spinal column and the vertebral border of the left scapula. To this he gives the name auricular pain. It may appear early, be constant or develop only with fatigue, exertion or upon strong percussion. Examination of the walls of the auricle revealed to the author a condition of cardiac cyanosis; the capillaries being distended, gorged with blood, becoming varicose and displacing the muscular fibers. To this stage succeeds

fatty infiltration without degeneration and tendency to connective-tissue proliferation. The apoplexies secondary to these changes constitute a grave source of danger in the thromboses and emboli to which they may give rise.

An Oats Diet in Diabetes.—The value of an exclusive diet of oats in severe cases of diabetes mellitus was announced in 1902 by Carl v. Orden, who now publishes some further observation on this method of treatment (Berlin. klin. Woch., Sept. 7, 1903). He has now treated about 100 cases with varying results. The diet consists of oats given in large quantities, in the form of oat flour or flakes, together with simple albumins and butter—excluding all other carbohydrates and meat. The usual daily allowance consisted of 250 grams of oats, 100 grams albumin (vegetable or from eggs), and 300 grams of butter. This was made into a soup and given every two hours. Wine or cognac was occasionally allowed, and also strong black coffee. He details a number of typical cases in which this diet was tried and in comparison with the other cures lately proposed, such as the potato diet of Mosse and the milk diet of Winternitz, the oats diet was attended with much more favorable results. A mixed diet of oats and wheat bread immediately was followed by an increase in the amount of sugar. The author advises, however, against the employment of this method in all cases and suggests that a careful trial be made in each individual instance, for he himself has observed cases in which the diet was attended by no improvement or even made the patient worse. The theory of the action of this food still remains in abeyance, but is being made the subject of experiment by the author.

Guajac Reaction in Leucemia.—Since even small quantities of the blood and bone-marrow of myelogenous leucemia will give a blue color with tincture of guajac, while the thymus, spleen and lymphnodes do not give this reaction, E. Meyer (Münch. med. Woch., Sept. 1, 1903) determined to study the behavior of the different leucocytes in this direction. If the blood of a case of myelogenous leucemia was centrifuged and the thick layer of leucocytes which had settled was tested, the reaction was negative unless the cells were diluted sufficiently with distilled water. Serum or physiological salt solution as diluent gave negative results which prove that the active substance is held in combination in the cells. The same experiment repeated with the blood and bone-marrow of a case of acute lymphatic leucemia, was negative. Negative results were also obtained with recent pus with well-preserved cells except on dilution, while decomposed pus did not require the addition of water. The active substance was isolated by means of a complicated process. It does not belong to the proteids or albumoses but is probably a ferment. By boiling it, it will no longer react with guajac unless peroxide of hydrogen is added.

The Use of Gelatin in Hemostasis.—Some recent clinical experiences in the employment of gelatin by rectal injections are published by T. Pfeiffer (Fortschr. d. Med., Sept. 1, 1903). These include 23 cases, comprising 16 of pulmonary hemoptysis in tuberculosis, 4 of gastric ulcer, and one each of epistaxis, pulmonary infarct and purpura hemorrhagica. The method was as follows: 15 grams of gelatin were dissolved in 150 c.c. of hot water, allowed to cool to the body temperature, and then injected under slight pressure as high as possible into the colon. These are given from one to three times daily and are usually well-retained—no evidences of the gelatin being visible in the stools. Even after the bleeding has stopped it is well to continue the enemas once daily for several days. The results in many of the cases were quite remarkable. In some the bleeding came on again where the treatment was stopped too soon, but as soon as it was resumed, the bleeding ceased at once. In a few cases the results were negative and in some the effects were not well marked. This uncertainty is also found when the gelatin is injected subcutaneously. The rectal injections are not, however, attended by unpleasant complcations, are free from the dangers of infection, and are quickly and readily applied. These may be considered of sufficient advantage to permit the substitution of the latter for the former.

Occurrence of Casts in Nephritis.—Casts without albumin may occur with jaundice and after the use of certain drugs (especially salicylic acid) but in the majority of cases they are pathognomonic for nephritis. D. Schwarzkopf (Münch. med. Woch., Sept. 1, 1903) recommends a careful search for them in all cases, since they often form the first symptoms of the disease, long before albumin is present and cardiovascular symptoms make their appearance. In another article A. Treutlein (Münch. med. Woch., Sept. 1, 1903) states that there are typical cases of nephritis with albuminuria and albuminuric retinitis but without casts in the urine. Casts are probably secreted here but a "cylindrolysis" goes on, induced by the colon bacillus in the bladder or in the renal pelvis and tubercle.

Glycosuria after Removal of the Pancreas.—The relations of the pancreas to the disintegration of sugar are well-known for if the organ is removed completely, diabetes appears. It is peculiar, however, that the degree of glycosuria varies within very wide limits and the reason for this has not yet been clearly settled. H. Lüthje (Münch. med. Woch., Sept. 8, 1903) finds that if dogs with extirpated pancreas are not fed, the glycosuria will disappear entirely. Sugar may still be detected in the blood, but it is completely used up by the organism. This proves that some other organ possesses the same functions as the pancreas, but to a less degree for even where the duodenum and the entire retroperitoneal tissue was removed so that no trace of pancreatic tissue could be left behind, the same phenomenon was noticed. It is also possible that the sugar is normally destroyed by the coordination of several organs. Another explanation, however, must be considered. Since glycosuria disappears only with fasting, when the animal begins to use up its own organized proteid, it is possible that the sugar derived from this source is destroyed by different organs than the sugar ingested. A similar phenomenon is observed in man: if a diabetic suffers also from severe cachexia or from fever, the glycosuria often ceases. As soon as carbohydrate is given here, sugar again appears. The same holds true if a dog with extirpated pancreas is again fed with foreign proteid.

Reactions for Albumin in Concentrated Urine.—A peculiar and hitherto undescribed behavior of albuminous urine is mentioned by B. Hallauer (Münch. med. Woch., Sept. 8, 1903). If normal urine is concentrated on the water-bath to half its volume, and albumin then added, the boiling test will be strongly positive but the ring and ferrocyanide tests absolutely negative. As soon as water is added, a turbidity will appear. If the urine is still further concentrated to one-fourth its volume, even the boiling test is negative. The substances which interfere with these reactions are: for the ring test, urea; for the boiling test, urea and neutral salts, and for the ferrocyanide reaction, the phosphates. It is thus necessary to dilute concentrated urines before testing.

Gums in Mercurial Poisoning.—Several cases of mercurial poisoning have been observed by D. Gilbert

(Bull. de l'Acad. Royal de Med. de Belg., Tome XVII, No. 6) where a blue line was present upon the gums, very similar to that found with lead. This fact is not generally referred to in literature, which is the more remarkable, since, from the appearance alone, it is hardly possible to distinguish it from the lead line. The history and other symptoms must be taken into account.

Prolonged Slow Pulse.—A more or less slow pulse is frequently observed in meningitis, cerebral tumors, jaundice, myocarditis, fatty heart, and in poisoning by some drugs. Otherwise it is a rather rare phenomenon, unless we include some cases of subacute polyarthritis and acute attacks of gout. I. S. KRAINDEL (Prakt. Vrach, No. 30, 1903) reports a case in which slowness of the pulse was brought on by an attack of gout. The pulse fell to 18 to 19 per minute; the pause tween the heart beats would every two minutes become so prolonged that the patient lost consciousness, the respiration became superficial or even ceased altogether; in 4 to 5 seconds consciousness returned but the pulse remained the same. Low position of the head, injections of camphor and inhalations of oxygen relieved the patient temporarily, bringing up the pulse to 24 to 25 per minute. The improvement in the pulse ran parallel with the improvement in the gouty condition, and any exacerbation of the latter reacted at once on the pulse.

The Relation Between Fever and Glycosuria.—It has been claimed by certain observers that the occurrence of fever during a glycosuria was accompanied by a diminution in the amount of sugar and a greater tolerance of a carbohydrate diet. This question has been debated *pro* and *con* and the latest contribution to this subject is by P. F. RICHTER (Berlin. klin. Woch., 1903, No. 37) who has studied the effects of simple temperature elevation and that due to infection. A glycosuria was artificially induced in rabbits by the injection of adrenalin chloride. In the first series of animals a rise of temperature was induced by an injury to the heat center in the corpus striatum. As soon as this was sufficiently well marked, 0.002 gm. ($^1/_{30}$ gr.) was injected subcutaneously and the sugar determined for the succeeding twenty-four hours. The temperature seemed to have no effect whatsoever on the glycosuria in these cases, and the amount of sugar was the same as in those animals where the adrenalin had been injected without stimulation of the heat center. Where a rise of temperature had been induced by the injection of a streptococcus culture, it was found, however, that in the majority of cases, the glycosuria disappeared entirely. This will account for the variation in the results obtained by different observers. The author believes that the diminution in the quantity of sugar excreted is due to the fact that certain bacterial processes induce a greater consumption of sugar in the organism and in this way diminish the amount which finds its way into the urine. There is a possibility that this observation may some day find a practical application.

Gouty Intestinal Lithiasis.—A case is reported by E. LEONARDI (Gazz. Osped., Aug. 30, 1903) in which diarrhea, with occasional bloody stools, having its origin in exposure to cold and wet, had resisted all methods of treatment during a period of three years; at the end of which time the patient came under his care. Inquiry into the family history elicited the fact that the father was obese, gouty and suffered from gallstones; while the mother was also obese and arthritic. Prior to the patient's illness he was inclined to superabundant flesh. An examination of the feces was made, in the course of which the presence of intestinal gravel was discovered. Regulation of the diet and manner of living soon reduced the number of stools from 40 to 10 and finally two daily. The patient was limited to purées of fresh vegetables, soups and very small quantities of meat; acids and wines being prohibited. To promote a more active metabolism and stimulate nutrition, moderate exercise, fresh air and baths were advised. The therapeutic treatment consisted in hypodermatic injections of sodium cacodylate, strychnine, mineral waters and tannalbin as an astringent. The success of this line of treatment in the face of the failure of all other measures during three years, together with the family history and finding of intestinal gravel justifies, in the author's belief, the diagnosis of gouty intestinal lithiasis. He holds that gout, renal, biliary and intestinal lithiasis may appear in the same individual at different periods of his life or in different members of the same family; and that such manifestations are hereditary.

Alkalinity of the Blood.—An examination of the blood of 63 patients suffering from various ailments, has been made by W. ORLOWSKY (Deut. med. Woch., 1903, No. 34), with particular reference to the alkalinity. In health the alkalinity ranged from 240 to 267 mg. sodium hydrate in 100 c.c. of blood with the litmus test. In disease the alkalinity was found proportional to the number of red cells, declining when there were few red cells and increasing when they became greater in number. The internal administration of an alkali or giving the latter in a tepid enema, had only a transient effect in increasing the alkalinity, although the second method seemed to have a more pronounced effect than the former.

Dietary for Goutily-disposed Persons.—It can hardly be doubted that many, if not all, of the dietetic methods practised to-day are founded on the commonly accepted theory which is held as to the pathology of gout—to wit, its dependence on an abnormal production or disposal in the system of uric acid and its immediate congeners. D. DUCKWORTH (Practitioner, Aug., 1903) believes that gout is not purely an humoral disorder but is dependent on a neurohumoral pathogeny. It is not necessary to demonstrate the presence of a uric diathesis. In any case it is certain that the peccant matter of gout is produced within the body, and is thus autotoxemic, not entering infectively from without as is the case in rheumatic or other varieties of toxemia. Also, the subject of gout, either by inheritance or acquirement, is so far peculiar in his constitution that he reacts differently to various agencies, such as climate, food, etc., from persons not so disposed. The metabolic processes of the gouty are abnormal. Many of the methods in practice relating to diet as well as to therapeutics for gout are founded on the principle of treatment for the *disease* and not for the *patient*. This is not the true clinical method and it constitutes a radical fault in medicine. There should be no treatment for gout and no special diet for the gouty, as such, but there is a treatment and a management for the particular patient who manifests gouty symptoms. The author believes that the ordinary rules laid down in regard to the restrictions of the diet are not founded upon any rational principles and are frequently distinctly harmful. With respect to animal food generally, it may be declared that it is not only harmless but beneficial to gouty persons provided it be taken in moderation. The alleged difference between red and white meats he regards as nonsense. Fish, especially fresh and white, is one of the best articles of diet for the gouty. Lobsters, oysters and most shell fish are quite innocuous, provided they are eaten in good condition. Viscera need not be excluded. With regard to vegetable food, it is hard to understand why plainly cooked

potatoes should be excluded. Many dyspeptics are better able to digest separately a meal of proteids or carbohydrates, but this is not peculiar to gouty patients. Fruit is condemned for very inadequate reasons. Some gouty people may be better without it but most of them can take fruit, raw and cooked, in moderation at proper times of day not only with impunity but with benefit. Tea, cocoa and coffee, properly prepared are perfectly harmless. The greatest consumers know nothing of gout. Certain vegetables, as spinach and the cresses are particularly valuable. Asparagus should be used sparingly. Respecting wines it is certain that the least excess in any of them is harmful and most moderate drinkers take too much but the fact remains that many are better for the use of a little good wine, taken with one meal in the day. There can be no universal rule as to the kind or amount. Most varieties of malt liquors are harmful to gouty patients and one of the earliest symptoms of the onset of the gouty habit is the inability to digest even small quantities of malt liquor. In short, both the food and drink of each individual patient must be studied and put upon a rational basis. The level of health must be raised by every method available. Many commit no indiscretions in diet but their general tone is low and an improved and adjusted diet is helpful. The class of persons who live sumptuously with practically two dinners daily require other treatment. Relief will come not so much by omitting this or that article of diet as by a daily and systematic reduction of the whole amount consumed. What has especially to be forbidden is richly seasoned, greasy and twice-cooked food. Strong soups, cooked tomatoes, rhubarb, foods cooked with fat or sugar, large, mixed meals of animal and farinaceous foods, together with fruit and wine—all these are gout-provoking. Variety is apt to lead to excess. We have, in truth, many articles to select from, but the keynote of our prescription should be strict moderation in all or any one of them.

PHYSIOLOGY.

New Researches on the Physiology of the Salivary Glands.—A study of the temperature relations of the salivary glands was made by R. Burton-Opitz (Pflüger's Archiv, July 6, 1903) in order to differentiate between the special influences exerted by the cerebral and sympathetic nerve-fibers upon glandular activity. According to Heidenhain, the chord a tympani contains fibers that influence the secretion of water and salt, while the sympathetic contains fibers that are concerned with the secretion of the organic constituents of the saliva. If this be true, then the rise of temperature in the glands during their activity (as observed by Ludwig) would, other things being equal, be the greater in the case of sympathetic stimulation, in which presumably the elimination of the organic constituents would give rise to more heat than the elimination of the inorganic bodies. With the view of determining the truth of this conclusion, Opitz conducted a series of experiments on dogs in which he measured by means of the electrothermometer, the temperature changes that occur in the submaxillary gland during stimulation of the chorda tympani and the sympathetic. He found that in the case of the stimulation of the former, the temperature-rise is the greater, and that a greater amount of saliva results in this case than in the case of stimulation of the sympathetic. If the stimulation of the sympathetic is made relatively so strong and of the chorda relatively so weak in two experiments, that the resulting secretions are approximately of the same volume, there is still, without exception, a greater rise of temperature in the case of stimulation of the chorda, which in the average is always three times as great as the temperature in sympathetic stimulation. Whether the salivary flow is produced by a stronger current of shorter duration or by a weaker current of longer duration, has nothing to do with the resulting rise of temperature. This is also not influenced by the clamping of the glandular artery during the experiment. These results apparently contradict the inference that might be drawn from Heidenhain's hypothesis of the specific activity of the two kinds of nerves. Another stage in this inquiry was to determine what histological changes, if any, occur in the submaxillary gland as the result of section of the chorda tympani and sympathetic respectively. This phase of the subject was studied by U. Gerhardt (Pflüger's Archiv, July 6, 1903). Macroscopically there was noticed a shrinking of the gland following section of the sympathetic, and still more following section of both sympathetic and chorda. The microscopic changes following section of the sympathetic are as follows: In the case of preparations of the submaxillary gland made after killing the dog a long time (16 weeks) after the operation, there is noticed a progressive shrinking of the nucleus of the cells and a thickening of the chromatin, and these changes are noticed not only in the side on which the nerve has been cut, but also on the other side as well. On the other hand, section of the chorda is never followed by the above nuclear changes but by distinct alterations in the protoplasm, giving rise to two different kinds of cells. In the one the normal protoplasmic structure acquires a distinct network, in the other a finely granular and opaque appearance; the nucleus is unchanged. In the gland on the non-operated side the cells are not affected. The changes following the two forms of section do not affect all the cells of the gland, there being no rule by which some cells are changed while others are not. The above phenomena indicate that the innervation of the salivary glands is an exceptionally complicated one. No adequate explanation of the causes of these changes is forthcoming. It is probable that the different parts of the cell are innervated in different ways and to a varying degree, and that the glandular fibers of the sympathetic nerve on one side in some way reflexly influence the secretion of the gland on the other side of the body.

Blood Sugar and Liver Excision.—It has been taught on the basis of experiments performed by Bock and Hoffman, that when the liver is cut off from the circulation the sugar of the blood quickly falls and disappears altogether within three-quarters of an hour. F. W. Pavy and R. L. Sian (Jour. of Physiol., June 15, 1903) find in agreement with other recent investigators that the above is not true, for after the lapse of some hours the lowest point reached by the sugar is about 0.5 per cent. There is also a great irregularity in the amount of fall in different experiments and in the rate of fall at different periods of an experiment. The quantity of sugar lost, looked at as a source of energy, is too insignificant to have, from this point of view, any physiological import.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Carcinomatous Change in Papilloma of Colon.—The so-called mucous polypi of the large intestine are usually thought to remain benign throughout life, and even Hausmann, in his work on the history of intestinal cancer, does not mention the polypus as a site of origin for malignant growths. Smoler allows that exceptionally the polypi may undergo cancerous degeneration. It is thus of importance that E. R. Forster (Rev. Méd. Suisse, Aug. 20, 1903) is able to report two

cases. In the one, a case of pulmonary tuberculosis, the intestine contained two benign polypi and a polypoid tumor with recently developed areas of carcinoma. In the other case there were many pedunculated tumors in the colon, the smaller of which were smooth and the larger cauliflower-like, and showing under the microscope an increase in number and size of the gland cells. In the rectum is a typical adenocarcinoma surrounded by polypi. The ages of the patients were thirty-two and twenty-nine years, respectively. Beach claims that the adenoma with long peduncle is always benign, while that with short pedicle tends to become malignant, but in the author's second case there was evidence of irritative and beginning malignant change in both long and short pedicled polypi.

Disturbances in the Development of the Kidney.— E. MEYER (Virchow's Archiv, Vol. 173, No. 2) had occasion to examine a peculiarly spotted kidney of a girl, nine weeks old, with a number of congenital defects (cleft palate, uterus bicornis, atresia ani). In some parts the renal tissue was of normal structure, in others, however, the convoluted tubules were absent. This observation makes it seem probable that the canal-system of the kidney is developed from two distinct germs. A study of the spotted kidneys of calves and the cystic kidneys of children confirmed the view that the latter are due to disturbances in development. The parts which do not attain full development may later give rise to tumors.

Chemical Individuality and Chemical Malformations. — Although comparative physiological chemistry is still in its infancy, according to A. E. GARROD (Pflüger's Archiv, July 8, 1903), yet there is no doubt that the various species of animals and plants differ in their chemical structure and in the products of their metabolism, to the same extent in which they differ in their anatomical structure, and in their form. One need only refer in this connection to the difference in the constitution and crystalline form of the hemoglobin of various animals, to the non-identity of the biliary acids of different species, as well as to the formation of specific metabolic products, as that of kynuretic acid in dogs. There are different respiratory pigments in the lower animals, serving the same function as hemoglobin. One observer has been able to classify certain butterflies in a new genus by discovering that the pigment of their wings was, unlike that of similarly colored butterflies, derived from uric acid and its derivatives. The facts of hemolysis, agglutination, etc., show how easy it is to classify animals with respect to the mutually antagonistic phenomena of their serum, in distinct species. The phenomena of natural immunity, and the peculiarities in the action of drugs and poisons on animals of different genera and species, all point to innate chemical differences. Moreover, it is well known that individuals of a single species differ from one another in form and structure, and it is logical to assume the presence of similar chemical variations. That such variations exist is proved by the results of artificial selection, for instance, the improvement of the sugarbeet; and the results of natural selection, as the development of the colors of the breeding-season in birds and the wintry coat of arctic animals. Of more immediate interest is the variation in the elimination of uric acid in healthy men under the same conditions of life and nutrition. Ocularly more evident is the variation in the color of skin, hair, and eyes in different individuals. If one seek fundamental chemical differences, these can be found in the greater or less susceptibility to infection and in the idiosyncrasy toward certain drugs and poisons possessed by different races and families of men. Just as the individuals of a single species agree with one another in the general anatomical structure, while a few present certain anomalies, such as supernumerary fingers, so in their chemical behavior, while the majority may agree so far as the general traits are concerned, yet a few may present certain anomalies of metabolism. As examples of such chemical anomalies, one need only mention albinism, alcaptonuria, and cystinuria. Albinism is undoubtedly inherited, lasts the entire life, and while not directly dangerous, compromises sight by virtue of the absence of pigment in the choroid. It sometimes occurs in several members of the same family, more commonly in the males, and is only seldom directly transmitted from parent to child. A large proportion of Albinos are the offspring of consanguineous parents. It is certain that albinism is founded on a chemical basis, for it depends upon the deficiency in the formation of melanins, normally present in the skin, hair, and eyes. Of significance in this connection is the recent discovery that the integumentary pigments are decomposition products of tyrosin, produced by the action of a specific ferment, tyrosinase in the intestine. The peculiarities of albinism gain in importance when compared with another chemical anomaly, namely, alcaptonuria, of which already 40 cases have been recorded. This condition depends upon a disturbance of the intermediate metabolism of albumin, resulting in the appearance of an abnormal constituent in the urine, namely, homogentisinic acid. It has been shown that tyrosin is one of the mother-substances of this acid, and, more lately, that phenylalanin is one of its antecedents. In the majority of cases alcaptonuria is inherited, continues throughout life, and in certain cases has been traced back to the beginning of life. It is usually discovered only by the appearance of dark stains in the patient's linen, otherwise it gives no symptoms. There is such a striking likeness between the pictures of albinism and alcaptonuria that it is difficult to avoid the conclusion that both conditions are controlled by the same laws. Like albinism, alcaptonuria appears more frequently in males than in females; it may appear in brothers and sisters in the same family, and only in one known case has it been directly transmitted from parent to child. The majority of the cases are the children of consanguineous parents. Cystinuria is a third example of chemical malformation, and, like the others, it is very rare, occurs more commonly in males than in females, is very seldom inherited, and may occur in both sexes in the same family. Of any possible blood-relationship of the parents, as yet little is known. In this connection the article by Abderhalden, recently abstracted in the MEDICAL NEWS, on the chemical pathology of cystinuria, is of extreme interest. This condition likewise appears to be a disturbance of nitrogenous metabolism, but its nature is not yet entirely clear, as, in addition to cystin, considerable quantities of cadaverin and putrescin are eliminated. Unlike the other anomalies, cystinuria cannot be regarded as a harmless affection, but the disturbances that accompany it are of a secondary nature, and have nothing to do with any metabolic derangement. The frequency of chemical anomalies in the children of first-cousins, which seem not to be confined to the three forms above described, merits a special inquiry. In this respect one finds a particular importance in the observations of Von Noorden on the early development of diabetes in several children of consanguineous parents. All these anomalies can hardly be attributed to the mere fact of blood-relationship, but rather to the circumstance that such relationship favors the heaping-up of certain latent tendencies in the family, which ordinarily do not manifest themselves.

Diagnosis of Myelogenous Tumors.—The possibility of diagnosing a myelogenous tumor before any characteristic symptoms have developed, by microscopical examinations of the blood, is suggested by E. Bloch (Deut. med. Woch., Vol. 29, No. 30). He presents details of a case, a man forty-one years of age, who developed symptoms suspicious of a spinal neoplasm. The blood showed an abundance of myelocytes, which seemed to indicate that the bone marrow was under the influence of some irritation. In addition the spleen was found to be unusually large and soft, and there was a rise in temperature. Subsequent autopsy showed that a large spindle-celled sarcoma was present, which had evidently originated in the vertebræ.

Clinical Tests for Urobilin.—The following new facts in the determination of this substance in urine are reported by W. Schlesinger (Deut. med. Woch., Vol. 29, No. 32). Fluorescence and distinct bands in the spectrum may be seen, if an equal amount of a 10-per-cent. alcoholic solution of zinc acetate is added to the urine and the precipitate filtered. Even a small proportion of urobilin in the urine responds to this test, while otherwise the bands are usually masked by the presence of other pigments. The reaction is disturbed by hemoglobin and a modification of the test is necessary. To 1.5 c.c. of a .7 per cent. saline solution is added enough potassium oxalate to form a 1 per 1,000 solution, when the same amount of blood is added. The latter, 1.5 c.c., is freshly drawn from the finger. The oxalate prevents the coagulation of the blood, but does not disturb the reaction. The tube is then placed in the centrifuge and the clear fluid poured off. An equal amount of the 10-per-cent. zinc acetate solution is added and the mixture again placed in the centrifuge. The supernatant fluid is then examined for the fluorescence and the spectrum bands.

Differentiation of Blood Plates by Staining.—A contribution to the subject of the properties and origin of these elements has lately been made by K. Preisich and P. Heim (Deut. med. Woch., Vol. 29, No. 33). In slides stained by Romanowski's method, somewhat modified, they claim to have established that the blood plates are nucleated formations of the red cells, thrown out by the latter into the circulating blood. In many cases they found that the red stained plates were still contained within the red cells which had been stained blue. In diseased processes where there was a marked regeneration in the number of red cells, the number of blood cells was correspondingly increased. In pernicious anemia, on the contrary, the number was lowered. Plates were also found in some cases within the phagocytes and the granulations in the latter may be merely the remains of the blood plates, which had been enclosed by these cells. They seemed to be identical in size, staining qualities and other ways, with the granulations of the blood plates.

On the Plurality of Cytolysins in Normal Blood Serum.—For the purpose of determining the existence in normal blood serum of cytolysins for other cells than red and white corpuscles, a series of experiments have lately been conducted by S. Flexner and H. Noguchi (Univ. Penn. Med. Bull., Vol. 16, Nos. 5 and 6). Sera from necturus, rattlesnake, dog, and ox were used and the results demonstrated the occurrence in it of solvents for a wide variety of animal cells. This fact having been established, the specificity of the solvents for the different cells was determined. The removal of a part of the solvents by means of certain cells does not prevent action of the treated serum upon still other cells, from which it could be concluded that the solvents are at least specially adapted to given cells; while a general reduction in activity of the serum which has lost a part of its solvents would also suggest that these are not specific in the strict sense. The mechanism of the solvent action is probably identical with that of serum hemolysis, and depends upon the interaction of amboceptors and complements. That the amboceptors are multiple in each serum would seem to be proven by the absorption tests; but whether the complements are also multiple has not been considered. It is highly probable that they are. The same line of experiments has also been pursued with snake venom. Observations were made on various animal cells, exclusive of red and white corpuscles, obtained from a large variety of both warm and cold-blooded animals. It was found that venom contains solvents for the parenchymatous cells of several animals, and that considerable differences in activity in this respect occur according to the source of the venom. Analysis shows that the venom is very complex and the solvent action on different animal cells is not due to a single substance, but to a number of principles, which are distinct from one another. It was also shown that the solvent for any given cell of one animal may be abstracted from the venom by absorption without removing the active agents for the same kind of cells belonging to another animal species.

The Cytoryctes Vaccinæ.—The appearance and evolution of the parasite of vaccinia—called by Guarnieri cytoryctes vaccinæ—are described by M. G. Lebredo (Rev. Méd. Cubana, August, 1903) as seen by him after introduction of fresh vaccine into incisions in the cornea of rabbits. Within forty to seventy-two hours after inoculation—the animal being killed, eyes extracted and prepared for microscopical examination after the manner described by the author—a nucleus, surrounded by a lighter areola may be seen within the protoplasm of the infected epithelial cells of the cornea. This body is the cytoryctes vaccinæ. At times it may appear to be within the nucleus of the corneal cell, but, according to the author, careful focusing shows it to be simply lying upon it. Again the parasite may appear to lie outside of the cell; but this, he believes, is due to section of the cell by the microtome in such a way that the parasite is separated from the cell. The various phases in the evolution of the germ are described as follows: The round body with its central point, presumably of chromotin, at first increases in size, then assumes an ameboid form, with pseudopodia, and lastly undergoes subdivision into numerous young parasites which, freed from the parent by rupture of the host-cell, seek another cell and undergo the same changes. It is not possible, however, to observe the successive cycles in the corneal cells of the rabbit, as by the time one cycle is accomplished the cytoryctes are masked by a secondary infection or disappear either by reason of the limited field of infection or the abundant phygocytosis occurring seventy-two hours after inoculation. The author states that both variola and vaccine when introduced into corneal incisions cause the appearance of the same parasite. Such inoculations with variola the author believes to be of practical diagnostic value; as inoculations with other infective forms are negative in result.

The Effect of Bacteria in Dissolving Nucleins.—The sodium salt of a nucleic-acid, either dissolved in position of the nucleic acids, suggested to Prof. A. Kossel the question whether certain bacteria grown on nucleic-acid as a culture medium, might not have a dissolving action on the latter in the same way as they dissolve gelatin. In order to answer this question a research was conducted by H. Plenge (Hoppe-Seyler's Zeitschrift, July 31, 1903), with the following results: The sodium salt of nucleinic-acid, either dissolved in distilled water, or in 5-per-cent. salt solution, or in a

bouillon of meat juice and pepton, in a concentration of 2.5 to 5 per cent., is capable of acting as an excellent culture medium for bacteria, and equally as well for puncture as for smear and plate cultures. This culture medium can be made perfectly transparent. The various micro-organisms do not exert their dissolving action on gelatin and the sodium salt of a nucleic-acid in parallel degrees; in many cases there is probably present in the bacterium an enzyme specially directed against the nucleic acid. It appears that the respective behavior toward this acid affords a new basis for the differential diagnosis between *Bacillus coli* and *Bacillus typhosus hominis*. Two different cultures of typhoid bacilli dissolved the nucleinic acid salt much more energetically than a culture of *Bacillus coli*. This acid furnishes an aid in classifying the bacteria and studying their natural history, and also a means of more closely studying the nature of the proteolytic ferments.

HYGIENE.

Protection Against Sunstroke.—The very interesting article of P. SCHMIDT (Arch. f. Hyg., Vol. 47, No. 3) deals with the protection the tissues of the head and the various articles generally worn afford against the direct rays of the sun. The entire skull, inclusive of a thin layer of hairs, is permeable for thermic as well as actinic rays. Cerebral tissue is relatively less diathermous, so that the cortex absorbs most of the rays. Anemic blood is much more diathermous than normal blood, and this explains why patients with malaria are more subject to sunstroke. It is hardly probable that the ultra-violet rays cause sunstroke; it seems more likely that the heat- and light-producing rays are responsible. White skin allows these rays to pass through about twice as readily as negro skin. Straw hats and white caps without lining are a very poor protection; the so-called tropical helmet is a much better safeguard. The value of the various cloths used in the tropics could not be decided.

NEUROLOGY AND PSYCHIATRY.

Some Elements of Metabolism in Epilepsy.—Impressed with the contradictory results reported from analysis of the urine of epileptics, G. SALA and O. ROSSI (Gazz. Med. Lombarda, Aug. 16, 1903) undertook the study of the urine during a period of from one and a half to two months in each of five epileptic patients; examinations of a given quantity of the urine eliminated during twenty-four hours being made daily. The diet was so regulated in each case as to establish metabolic equilibrium. The authors tabulate their findings as follows: (1) The quantity of urine was normal in the majority of cases; (2) the color varied from straw-color to golden; (3) the specific gravity was always high, even when an increased quantity of urine was eliminated; (4) acidity was normal, or slightly below normal; (5) phosphoric acid varied within normal limits; (6) the amount of urea corresponded to that considered as medium by authors in general, but it was less than that which should have been eliminated with the diet given; (7) the quantity of chlorides was generally above the normal, though at times it reached the normal. No connection was apparent between the variations in these elements of the urine and the occurrence of epileptic seizures. An increase in indican was always seen the day following a seizure. Not the faintest trace of albumin was found after an epileptic seizure, whether this was repeated or not.

Pathogenesis and Prognosis of Tabes.—In the opinion of M. FAURE (Jour. de Méd. de Bordeaux, Aug. 16, 1903) syphilis does not play the important part usually assigned to it in the causation of tabes. Other infections and intoxications or simply physical or moral shock, mental strain, or privation must be considered as etiological factors in the disease. Though the majority of tabetics have suffered syphilitic infection, the symptoms of tabes first appear in many such subjects after other infections and intoxications. It may be said that in 60 per cent. of the cases, no matter what the treatment, tabes is arrested in the early stages; or its evolution is so slow that its effect upon the duration of life is very slight. In but 30 per cent. does the disease progress so rapidly as to justify the grave prognosis formerly given in this condition. Five per cent. of the cases are clinically cured, while a like number progress rapidly and fatally, and their course is marked by fever and symptoms of infection. This febrile form of tabes has not hitherto been described, and runs a short course of a few months to two years.

THERAPEUTICS.

Colloidal Oxide of Bismuth in Digestive Disturbances of Infancy.—Colloidal oxide of bismuth is tasteless, readily soluble in water and contains 20 per cent. of metallic bismuth. It is to be preferred to bismutose tannigen and tannalbin, since it can be given in solution and never appears unchanged in the stool. KINNER (Münch. med. Woch., July 21, 1903) has employed it in a number of cases of gastro-enteritis in children, complicated by scrofulosis, rachitis and pneumonia, and speaks of it with quite some enthusiasm. The treatment begins with gastric and rectal lavage, and thin tea or albumin water internally. Then three or four daily doses of 5 cubic centimeters of a 10-per-cent. solution in expressed mother's milk or diluted cow's milk are given. The stools soon become more consistent and grayish-green, and the children will rapidly get over their acute attack and gain in weight. For chronic disturbances, with atrophy and swelling of the mesenteric lymph-nodes, the preparation is useless, like most other remedies. Gastric irritation was never observed, even after prolonged use.

The Treatment of Purulent Wounds With Pulverized Solutions of Soda and Sodium Benzoate.—The successful application of warm soda compresses over purulent wounds attracted the attention of ZWETAYEFF (Prakt. Vrach, No. 20, 1903) some time ago. The wound is first thoroughly washed with boric acid or bichlorid, and after dusting it over with airol, xeroform or iodoform, a compress of sterilized gauze saturated in a five-per-cent. solution of soda is placed over it; the whole is then covered with cotton and oiled silk. In abscesses that require opening, the cavity is filled with gauze saturated with a five-per-cent. solution of soda and covered in the above way. In beginning suppurations several incisions are made throughout the length of the affected tissue and the same compress is applied. Not only were there no complications, but the healing was rapid and uneventful, usually after the fourth or fifth compress. Further observations induced the writer to utilize the benzoate of soda in pulverized form before the application of his compress. Five cases, including three capital operations, are brought forward to illustrate the writer's contention.

Empyroform, A New Tar Preparation.—This substance, lately introduced, has been given a thorough trial by A. KRAUS (Prager med. Woch., Aug. 13, 1903), who finds it of especial value in skin diseases, particularly those of an eczematous character. It is a fine dark-grayish brown powder, produced by the condensation of oleum rusci (oil of tar) and formaldehyde. It is insoluble in water, ether or alcohol, but readily so in acetone, caustic alkalies and chloroform, and has very little odor. It may be best applied in the form of a five-per-cent. ointment composed of vaseline and lanoline.

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MEETING OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

THE semi-annual meeting of the Medical Society of the State of New York, which was held at the Academy of Medicine in this city during the present week and an account of the proceedings of which will be found on page 757, was very fully attended and proved a series of interesting sessions. Dr. Deaver's paper on Hepatic Drainage, on the morning of the first day, served as the nucleus for a symposium on our present knowledge of the surgery of the biliary tract, that reflected recent progress of American surgeons in this field of activity. On the morning of the second day, Dr. Dawbarn's paper, on the Technic of Operations Upon the Tongue, shared the same distinction and brought out a variety of interesting opinions with regard to practical methods in these difficult surgical procedures, which show how thoroughly New York surgeons are keeping abreast of the times. The announced symposia on the Roentgen Rays and Typhoid Fever, which occupied both the afternoon sessions, brought out some valuable contributions to our present knowledge of these important matters.

The address of the Hon. William W. Goodrich, Presiding Justice of the Second Department of the Appellate Division of the Supreme Court of New York State, marks an interesting epoch in modern fraternization between the medical and legal professions. There is no doubt that the members of the two professions can be of great service to one another by mutual discussion of recent advances in medicine in their relations to present-day applications of legal principles. As an exemplary initiative in the matter rapprochement could have no better representative than Presiding Justice Goodrich, whose well-known dissent from the prevailing opinion of the Appellate Division, when it reversed the condemnation of a faith healer in this State, has just been confirmed by the Court of Appeals reversing the decision of the majority of the Appellate Division, thus upholding Presiding Justice Goodrich's opinion. Justice Goodrich's paper on the legal status of the Roentgen rays, laid down very explicitly the legal principles on which Roentgen ray skiagrams become formal evidence, and also made clear what are the dangers of malpractice suits with regard to injuries produced during the employment of the X-rays.

The special meeting of the Society, held on Tuesday evening, considered particularly the question of reunion of the present State medical organizations. The proposal to continue the former committee on reunion, giving it power to do whatever it considered necessary to bring about this reunion was voted unanimously. The sentiment of all those present was very evidently in favor of the corporate union of the two present medical organizations, as soon as possible.

Now that the committees appointed by both the Society and the Association have full powers in the matter, it is only a question of very short time until union shall be effected. The members of the committee appointed by both organizations are men whom the medical profession of this State can depend on to do everything in their power to put an end to the present unfortunate division of medical organizations and professional interests for which there is no longer any good reason. We hope to be able to announce within the next month, certainly before the end of the present year, the definite reunion of the New York State medical organizations.

PATHOLOGY OF A PROPHET AND HIS FOLLOWERS.

NEW YORK city is having the experience of being evangelized by the new Elijah, John Alexander Dowie who, after much-heralded prepara-

tion, has come among us with the idea of turning our unregenerate citizens from the errors of their ways toward Dowieism and the new Zion.

There are not wanting those who find the motive for this sudden interest in the spiritual condition of New York city in what the New York *Times* described editorially, one morning last week, as the fact that "he has already worked the credulity of Chicago and its more or less immediate neighboring regions for all they were worth and now feels the need of broader fields to cultivate."

The results thus far obtained by the new prophet in New York serve to show that very probably he is not going to have quite as much success as he fondly anticipated, or, at least, assured his credulous Western followers who so liberally supplied him with the sinews of war for this campaign among the benighted heathen of the East. In the fact that many thousands have been attracted to him out of mere idle curiosity, though not a few of those who went to scoff apparently remained to pray or the equivalent of that act of worship, according to the tenets of Dowieism, there is food for not a little reflection. Physicians cannot but learn to realize from the contemplation of a spectacle like this how narrow is the line dividing sanity from insanity, especially in the matter of religious persuasion, where depths of emotion are involved.

"Half the world is off and the other half is not quite on," is the expression of an American philosopher, but its jocund exaggeration enforces a great truth, the application of which is never more evident than in the midst of a movement like this. There are always to be found an abundance of people ready to take up with the latest religious fad, no matter how absurd it may be. That such people may be rational from other points of view is perfectly clear from the fact that many of them have had the business instinct and commercial ability to amass considerable wealth, so that the leader or leaders of the new religious movements rapidly accumulate riches. Mrs. Eddy's fortune and the handsome edifices for public worship after the Christian Science fashion, which have been built in recent years on prominent avenues in New York city are quite conclusive evidence of this. Dowie's wealth and the elaborate and expensive preparations made for the two weeks in New York, which included an advance check of $14,000 for the use of Madison Square Garden for fourteen days, supply confirmatory evidence if it is needed.

As to the leader of the movement himself there seems no good reason to doubt that he is sincere in most of his professions. He is one of the cases of conviction of reincarnation that are so common among the insane that every asylum in the country has some examples of it. With this fixed idea become a ruling passion there is combined a capacity for business and the administration of affairs, a positive genius for organization and withal a persuasiveness of language and a magnetism of personality that makes the possessor of these heterogeneous qualities a most interesting subject for study and painstaking investigation. If the community generally should be brought to the realization of the true nature of the movement as a phenomenon of mental pathology much would be accomplished in making public opinion truer in the matter of the appreciation of mental disequilibration generally, especially as regards legal complications.

Even more interesting than Dowie himself as a pathological study is the number of his followers who are aiding him in the cause and who present in supreme variety the earmarks of the mentally disequilibrated in all degrees. Of course, not all of the converts are sincere and some, as in the case of many a Christian Science healer, find an opportunity in the latest religious fad to make a living easier than has ever been possible for them before. Many are in fact the failures in life at all ordinary occupations who must make their living by exploiting others, but not a few of the missionary assistants and followers are as sincere as it is possible for men and women ever to be and are striking examples of the possibility of the communicability of illusions,—a fact that has occupied such a prominent place in history. For there is for susceptible minds, those that lack resistive independent vitality, quite as much danger of the contagion of ideas as for bodies in like conditions there is of infection by bacterial agents. Community of illusion and delusion is a fruitful feature of all alienists' work.

Needless to say, religion is not the only subject in which such self-deception and a communication of influence is possible, though it is in this field, as the ready following obtained for Theosophy, for Buddhism, for Spiritualism, and for Babism attest, that the fostering of delusion is easiest. All are interested in the presumedly spiritual side of things and lend themselves readily to persuasion. Where other subjects are popular, however, there may be quite as remarkable, though not as widespread, a manifestation of the

tendency so common in humanity to accept its thinking from others. Many a system of philosophy has gained its following because of this fact and among the so-called educated classes many of the literary fads are little better than the index of the custom of dependent minds accepting their ideas from others.

Our visiting evangelist and his disciples promise to be of distinct service in pointing out in its most exaggerated form the tendency of the generation to look for a leader in its thinking. Much may well be learned of psychical contagion, its conditions and its limitations. Meantime there is no doubt that the religious emotivity aroused by the new prophet will be a sure source of danger to many weak, but under ordinary circumstances fairly balanced minds, and it should be the duty of family physicians especially to warn other members of families where such persons exist of the danger there is for them in the movement. Prophylaxis here may prevent an actual outbreak of insanity, as the result of religious excitement, and once this has actually occurred its chances of recurrence are very strong. In a word, the situation has many interesting and important medical features of practical as well as theoretical significance and medical men must not miss their inward meaning.

ECHOES AND NEWS.

NEW YORK.

The Kings County Medical Association.—A stated meeting of the Association was held on Tuesday evening, October 13. The professional paper of the evening was upon "The Spectroscopic Elements of Light as Therapeutic Agents," and was read by Dr. George G. Hopkins. The discussion was by Drs. Andrew H. Smith, William James Morton, Samuel Lloyd and A. D. Rockwell, of Manhattan.

Police Surgeons' Appointments.—Taking advantage of the authority vested in him under Section 202 of the charter, Police Commissioner Greene has removed Dr. Stephen G. Cook, as President of the Board of Police Surgeons, and has appointed in his place Dr. E. T. T. Marsh. He has also appointed as secretary of the board Dr. Henry P. De Forest, Commissioner Greene said the change was made to increase the efficiency of the board. No extra pay attaches to the positions, which are entirely honorary. The police surgeons have been in the habit for years of electing their own president. Dr. Marsh is surgeon of the Seventy-first Regiment and a friend of Commissioner Greene of long standing. He received a medal and honorable mention from Commissioner Partridge for heroic service at the Park Avenue Hotel fire, where he saved the life of a guest. Dr. De Forest was appointed a surgeon only a short time ago by Commissioner Greene.

New Gouverneur Plans.—As Chairman of the Board of Trustees of Bellevue and Allied Hospitals, Dr. John Winters Brannan applied to the Board of Estimate and Apportionment last week for an appropriation of $317,075, to defray the cost of a new wing and extensive alterations to Gouverneur Hospital, at Gouverneur Slip and Front street. The plans for the alterations and additions have been submitted to the Bureau of Buildings, and have just been approved. When an appropriation of $125,000 was requested by the Board last spring, it was intended simply to erect a new wing, but a close examination of the conditions in the old building showed that a mere enlargement of it would be inadequate to meet the demands of the situation. The completed plans of the architect, Raymond F. Almirall, provide for the alteration and rearrangement of the interior of the old building, the addition of the new wing, a new morgue and autopsy room, a new ambulance house and stable, and a driveway in the courtyard for the service of the ambulances. The design indicates a finely equipped, complete, and up-to-date hospital. There is provision now in the hospital for about ninety beds, and, with the additions and alterations, this will be increased to about 140 beds. Practically no diet kitchens exist in the old building, and these will be supplied for all the wards. In the old building the accessory rooms to the main operating room are altogether insufficient. A surgeon's dressing-room, etherizing room, sterilizing and bandage room, and recovery rooms will be supplied. It is believed that the work can be completed within eighteen months.

New Sanitary Code.—Of the various reforms instituted by the Board of Health under Dr. Lederle, there is one of far-reaching importance which has received but little attention. This is the entire revision and rearrangement of the Sanitary Code, copies of which were recently distributed. Revision was made necessary by the fact that the vigilance of the health inspectors often proved fruitless because many important sections of the old code were hopelessly involved and could not be interpreted clearly by judges. Violators of the city's health laws were often discharged in court owing to this cause, and the work of the department was thus seriously handicapped. The revision included the addition of new and important sections, the rewriting of nearly all the old ones, and the placing under their proper headings of ten sections that had been added from time to time. A comparison of the old and new codes will readily show some of the most important changes. Section 26 of the old code required all lodging houses to obtain a permit from the Department of Health, and when strictly interpreted this ordinance could be construed to cover first-class hotels, while it was intended really to apply to buildings like Bowery lodging-houses, which have dormitories containing a large number of beds. The ordinance was therefore altered to read "for all lodging-houses . . . containing rooms in which there are more than three beds for the use of lodgers, or in which more than six persons are allowed to sleep, a permit from the Board of Health shall be required." Section 27 provides that no change shall be made of the drainage, sewerage, or the sewer connections of any house or premises involving similar changes in other houses, unless at least thirty days' notice shall have been previously given to the Department of Health and to the owner of the premises affected. The old ordinance did not require notice to be given to any but the health inspectors, and as a result much inconvenience was caused to householders whose private sewers were stopped up or broken into by their neighbors. The new code regulates street sales of foodstuffs much more efficiently than the old. The

Tenement House Department discovered that cellars were being used as stables for pigs and goats, and this has resulted in an ordinance to prevent the use of a cellar as a stable for horses, cattle, or other animals, without a health permit. Offensive odors arising in slaughter-houses from the handling of meat and treating of offal must now be condensed, and not allowed to escape into the outside air, and in the built-up portions of the city every stable must be connected with the street sewer in front of the building. The smoke ordinance has been amended to cover the discharge of smoke from locomotives, while that part requiring the use of smoke consumers has been eliminated. The Board of Health cares not how factories and buildings consume smoke, so long as it is consumed without annoyance to the public. To prevent the spread of contagious diseases among animals, owners who destroy horses or other animals affected with glanders or farcy must notify the department of the place, destruction, and the disposition of the body. Dead horses, before they are placed in the street, must have a tag attached giving the name and address of the owner, and particularly of the stable. These two sections are new, and are intended to enable inspectors to trace the source of diseases. Dogs or other animals showing symptoms of rabies may, under the new code (section 132), be surrendered to the department for inspection and observation, and if found rabid may be destroyed. Under the provisional classification of infectious diseases are arranged a number of diseases which, before the new code was compiled, were not reported by doctors or hospital superintendents. In cases of influenza, pneumonia, parasitic diseases of the skin, cholera infantum, etc., reports are not asked for with the view of exercising a sanitary surveillance, but only for the purpose of obtaining information with a view to the ultimate removal or improvement in the conditions which now foster them. "Notification," the code says, "is required in certain of these diseases because of the liability of their extension among the children in schools."

Death of Dr. Franklin.—In accordance with a resolution, unanimously passed at a meeting of the Harlem Medical Association on October 7, 1903, the undersigned respectfully present the following preamble and resolutions on behalf of the Harlem Medical Association:

WHEREAS, by the inscrutable ways of a Divine Providence we have lost in the death of Doctor David Franklin, one of our most loyal, conscientious and faithful members, for many years the treasurer and a trustee, and at one time President of the Harlem Medical Association, therefore be it

RESOLVED, that we enter upon our records this minute of our lasting regret at his untimely death, and our deep appreciation of the manly traits of his character which endeared him to all. Doctor Franklin was known to us as a model of quiet patience, perseverance and determination of character, and as one of nature's noblemen; a skilful physician, a cheerful councilor, and a loyal friend. As a physician he was thorough, clear-headed and scientific, studying each and every case intrusted to his care with the patient minuteness of detail so requisite, and his large and successful practice bears every evidence of the success that follows such painstaking attention. His faithful service as physician to the Orphan Asylum for twenty years, abundantly shows his unswerving attention to duty. Not only were his services eagerly sought by those suffering, but he became endeared to those who knew him, and his counsel was often asked and as eagerly accepted, as it was cheerfully given. As a friend he was all that the name implies, ready to respond to any call made upon him, self-denying and self-effacing, tried, faithful and true.

Although taken from those who loved him at the very zenith of his career, when there was every reason to believe that there was a future of happiness and fame awaiting him, his all too short life brings to us all a lesson we may profit by. We shall ever bear him in fond remembrance and place this record of his manly, loyal, consistent, gentle and true character upon our records, as they are engraven in our memories. Emil Mayer, M.D., Chairman; Richard van Santvoord, M.D., Montrose R. Richard, M.D., Committee.

PHILADELPHIA.

Removal of Dr. Laws.—Dr. William V. Laws has lately removed from Philadelphia to Hot Springs, Ark., where he has become associated with Dr. T. E. Holland, both in private practice and as physician to the Ozark Sanatorium.

Bribery Charges Denied by Osteopaths.—The reported statement of Dr. William Smith, of St. Louis, that the bill to regulate the practice of osteopathy might have passed the legislature of Pennsylvania at the last session if money had been used, is not credited here or in Pittsburg by members of the legislature or by osteopaths. Smith claims to know of an offer of the votes of eight members of the Pennsylvania Assembly for $1,800. The statement cannot be substantiated by those referred to by Dr. Smith. The bill was fought by both allopathic and homeopathic schools and never had a chance to pass.

Vaccine Physicians Receive Instructions.—Considerable complaint against certain vaccine physicians has been the cause of personal instruction to the physicians regarding the vaccination of school children by Director Martin. Special emphasis was put upon the right of parents to keep their children in school if they are provided with certificates of vaccination, however long a period may have elapsed since the operation was performed. The system of employing physicians outside the department of health to perform vaccination was condemned by Dr. Martin as tending to encourage an annoying excess of activity on the part of the vaccine physicians who receive forty cents for each person vaccinated. Dr. Abbott, Chief of the Bureau of Health, is in favor of revaccination of public school children every five years.

State Medical Society and Temperance.—The action of the State Medical Society at the recent meeting in York in turning down the report of the committee on the examination of school text-books is taken by some to mean that the society endorses the books which were condemned by the committee. This idea is entirely erroneous as the members of the society were heartily in favor of the principle embodied in the report. The personnel of the committee and the statements employed were in some ways objectionable and hence the failure to endorse its report. The entire committee was therefore discharged and later an entirely new committee, having the same purpose in view as the older one, was appointed by the new presiding officer. The work, therefore, will be continued, and the exultation of some of the advocates of the books in question has been entirely premature.

Three Cases of Perforated Gastric Ulcer and One Case of Perforated Duodenal Ulcer.—This interesting series of cases, all operated upon during the present year, were reported at the recent meeting of

the Academy of Surgery by Dr. John H. Gibbon. The first case, that of a boy of eighteen years, was notable because the symptoms pointed to appendicitis, and operation was undertaken for the relief of that condition. The true state of affairs was found, however, and recovery followed. Two of the patients were nourished during the three weeks subsequent to operation solely on rectal enemata of malted milk, four ounces every four hours. This method gave very satisfactory results. One patient died from general peritonitis which developed after operation was advised and refused. In the discussion of this paper, Dr. W. L. Rodman said that more radical treatment than is usually thought necessary should be employed in cases of gastric ulcer. When the diagnosis of ulcer is made the excision of the ulcer-bearing area to prevent perforation seems advisable. This presents neither great difficulty nor risk of danger as in probably 80 per cent. of cases the area is located where excision is readily accomplished. Dr. Gibbon, in closing, made very emphatic a point which he had mentioned in connection with one of his cases, namely, the extensive induration of the stomach wall. This is an important point in view of the reported cases of gastro-enterostomy for gastric cancer which have been followed by the disappearance of the cancer. Such have probably been cases of induration surrounding an ulcer. In his own case he would probably name the condition malignant had it been in the neighborhood of the pylorus. He cited a supposed case of pyloric cancer in a debilitated woman upon whom radical removal was considered to be inadvisable. Gastro-enterostomy was performed with the idea of later resection if the condition of the patient improved enough to warrant its undertaking. The progress has been so satisfactory that it encourages the hope that it was also an indurated ulcer rather than a cancer.

CHICAGO.

Resignation of Dr. Jaques.—Dr. Wm. K. Jaques has resigned as bacteriologist of the Health Department. His resignation has been accepted, and Dr. F. E. Wynekoop has been appointed temporarily to take charge of the Laboratory.

Sanitary Inspection of Illinois Cities.—The inspector for the State Board of Health, Dr. E. F. Baker, has made an inspection of Taylorville, Pana, Shelbyville, Carlinville, Carrollton, Petersburg, Havana, and Mattoon. An excellent sanitary condition is said to prevail in all of these cities. Several cases of scarlet fever were found in and near Taylorville, and two cases of diphtheria in Pana, with one death.

New Hospital Opened.—The Victoria Memorial Hospital and Training School was opened October 2, with an address by Dr. E. P. Murdock.

Suicides.—According to the weekly bulletin of health, of the 54 deaths by suicide in September, 16 were caused by carbolic acid, 9 by gunshot wounds, 7 by gas asphyxiation, 6 by opium, 4 by cutting throat, 3 each by hanging and undetermined poisons, 2 by Paris green, and one each by chloroform, formaldehyde, hydrocyanic acid and burning.

To Check Ravages of Tuberculosis.—To combat and prevent consumption is the purpose of a movement undertaken jointly by the Chicago Bureau of Charities, the Visiting Nurses' Association and a number of prominent physicians. The city will be divided into eleven districts, practically corresponding to the divisions of the charity bureau, where physicians and nurses will be in charge to investigate all cases in the neighborhood. The plan for the prevention of the disease includes both medical and material aid, of which the latter will be furnished from a fund of private contributions. The project is based chiefly on the preventability of the disease, and it is therefore the purpose of the allied interests to employ every possible precaution against infection. This, it is hoped, will be effected by the proper collection and destruction of the sputum and by an increase of the bodily resistance of the consumptive through hygienic modes of living. "Every consumptive who is not taught how to dispose of his sputum, by the dissemination of the germs therein contained, endangers the health of all those around him." This is the slogan of those who have entered on the crusade, and the public is to be instructed, through reading matter on the subject, how to care for those who come in contact with the consumptive. Public lectures will be given further to enlighten the people, and the "district physician" will furnish additional information. The needy will be supplied with food, medicines, spit-cups and articles which will promote cleanliness in the homes. Persons working under unhygienic conditions will be furnished healthful occupations, and, when the case necessitates, the consumptives will be transferred to more favorable climates. Eventually health farms for convalescing children, sanatoria for curable cases, and hospitals for advanced cases will be founded.

Funds for the undertaking have already been appropriated by the Bureau of Charities and the Nurses' Association, and private subscriptions will be solicited. A munificent endowment has been promised, but the authorities decline to give out the donor's name before the first meeting of the directors, which will be held the latter part of the month.

CANADA.

The Opening of the Toronto New Medical Buildings and Laboratories.—The formal ceremonies in connection with the opening of the fine new medical buildings and laboratories of Toronto University took place on October 1 and 2. On the afternoon of October 1, in the North lecture-room, before a brilliant assembly of noted medical men from the United States and Canada, as well as many eminent and prominent laymen, the opening and dedicating ceremonies were held. To begin with Dr. Hoskin as chairman of the Board of Trustees of Toronto University, formally handed over to Dr. Loudon, the President of the University, the keys of the new medical laboratories. Afterward Dr. Loudon called upon Professor Charles Scott Sherrington, of the University of Liverpool, to deliver the opening address, which he did in a very able and masterly manner. Following this, President Loudon introduced the representatives of sister institutions in the United States and Canada, all of whom made short congratulatory addresses, wishing the new medical laboratories and the University great and continued success. These representatives were: Professors Welch and Osler, of Johns Hopkins; Prof. Keen, of Jefferson; Prof. Abbott, of the University of Pennsylvania; Professors Roddick, M.P., and Adami, of McGill; Prof. and Senator Sullivan of Queen's; Prof. Barker, of Chicago; Prof. Chittenden, of Yale; Prof. Townsend Porter, of Harvard; Prof. McMurrich, of the University of Michigan, and Prof. Roswell Park, of the University of Buffalo. The occasion also marked the first public appearance of the newly amalgamated medical faculties of Toronto and Trinity Universities, and every satisfaction was felt and expressed at this great consummation. On the evening of the first day Prof. Osler delivered the annual opening lecture to the students. While he did not believe

much in this lecture, he was at the present time very proud to be the recipient of the honor. Needless to state, this brilliant son of Canada received a warm and enthusiastic welcome from his audience. A special convocation was held on the afternoon of the second day, the morning having been devoted to special lectures to the students in the various lecture rooms by the visiting representatives, particularly by Professors Barker and Abbott, at which the following received the degree of LL.D. *honoris cause:* William Williams Keen, Philadelphia; William Henry Welch, Johns Hopkins University; William Osler, Johns Hopkins University; Russell Henry Chittenden, Yale University; Charles S. Sherrington, of the University of Liverpool, and Henry Pickering Bowditch, Harvard, *in absentia.* On the same evening the Dean, Dr. Reeve, and the members of the Medical Faculty tendered the visiting delegates a banquet in the University dining-hall. Thus was the new medical building of Toronto University, which, Professor Osler states, is the finest on this continent, fitly opened and rendered more appropriate by the celebration of the marriage ceremony of the two one-time famous rival institutions, Trinity and Toronto.

Consumption Sanitarium May Be Erected in Montreal.—The Executive Committee for the League for the Prevention of Tuberculosis in Montreal, met last week, and many important matters were taken up and discussed. Dr. T. G. Roddick, M.P., was in the chair, and he was supported by Sir William Hingston, the Hon. Dr. Guerin, Dr. A. J. Richer, Prof. Adami and Drs. Hutchison, Hamilton, Hackett and Laberge. One of the chief questions discussed was that of securing from the provincial government a grant of 100 acres of land for the purposes of a sanitarium. Dr. Laviolette expressed his willingness to give a grant of land to the League, provided they complied with certain conditions which he named. His offer will be considered and doubtless accepted. The League since May last has dealt with 70 cases. About 200 visits had been made by an inspector and 72 houses disinfected. Financial assistance had been rendered several cases by the League.

Typhoid Fever in Montreal.—Typhoid fever seems to be spreading in Montreal. There are now 35 cases registered in the General Hospital, and among the number are two nurses of the hospital. There are 25 cases in the Royal Victoria Hospital, 12 in the Notre Dame Hospital and 4 at the Western Hospital.

McGill University.—The formal opening of the medical department of the University of McGill for the session of 1903-4 took place on the afternoon of September 22. Lectures began the following day, to continue to May 21, when the annual examinations are to be held. The number registered up to the present is 333, but it is expected that there will be over 400 present. The freshman class numbers 115.

District of St. Francis Medical Association.—The District of St. Francis Medical Association met at Sherbrooke, Que., on September 9, with Dr. W. D. Smith presiding. A vote was carried calling for the reduction of the representatives of the College of Physicians and Surgeons of Quebec from 43 to 25. The following officers were elected: President, L. C. Bachand, Sherbrooke; first vice-president, J. McCabe, Windsor Mills; second vice-president, A. G. Beique, Magog; secretary, F. A. Gadbois, Sherbrooke; assistant secretary, E. J. Williams, Sherbrooke; council, W. A. Farrell, F. J. Austin and Dr. Camirand.

Montreal General Hospital.—According to the last quarterly report of the Montreal General Hospital, there were 813 patients treated in the wards during that quarter, with 67 deaths, 26 of which occurred within three days after admission, thus making the ordinary mortality 5 per cent. The total number of hospital days was 16,177, with an average detention per patient of 19.9 days. In the outdoor departments there were 8,651 consultations, an increase of 541 over the corresponding quarter of the previous year. The ordinary income for the quarter was $16,054.44, as against $18,501.08 for the corresponding quarter of 1902. The expenditure for the quarter was $24,916,78, as against $23,837.63 for the same quarter in 1902.

Association of Health Officers of Ontario.—The Eighteenth Annual Meeting of the Association of Ontario Health Officers was held at Peterboro, Ont., on September 9, under the presidency of Mr. Thomas MacFarlane, Chief Analyst for the Dominion Government, Ottawa.

Canadian Medical Association.—The Thirty-seventh Annual Meeting of the Canadian Medical Association will be held in Vancouver, B. C., in August or September, 1904, under the presidency of Dr. Simon J. Tunstall of that city. Dr. George Elliott, Toronto, is the general secretary.

GENERAL.

English-American Medical Society's Dinner in Paris.—The Fifteenth Annual Dinner of the Anglo-American Medical Society was held on last Tuesday evening at the Hôtel du Palais d'Orsay under the presidency of Mr. Maurice de Bunsen, Minister Plenipotentiary at the British Embassy. Mr. Bunsen made a speech, uniting in one toast King Edward, President Loubet and President Roosevelt. Drs. Linn, Mills, Bull and Bottentuit were among the speakers. Others present included Drs. Herbert, Landort, Lowenburg, Lobinson and Spaulding.

A New Intoxicant.—During the South African campaign the British soldiers discovered a new and extraordinary form of intoxication. The ingenious privates found that they could get all the excitement of a powerful narcotic by eating a cordite charge of cartridges, each of which contains sixty strands of cordite and is very similar in appearance to vermicelli. The *British Medical Journal* gives particulars of this form of intoxication. It says that Major Jennings, on learning that the men had been eating cordite, made experiments himself. On sucking a strand he found it sweet, pleasant and pungent, but it resulted in a headache which lasted for thirty-six hours. Dissolved in tea it produces almost immediate exhilaration, "inciting almost demoniacal actions," followed by a heavy sleep and stupor of from five to twelve hours, according to quantity taken. Added to beer it produces the worst effects, exciting a quarrelsome and destructive mania and producing the most rapid intoxication.

The Struggle Against Consumption in Scranton.—So many inquiries concerning the new Scranton Consumptive Hospital have been made that the Board of Managers have issued a pamphlet. The sanatorium was opened August 3, and is the first institution of the kind to be established by a city for its own cases. It is on a thirty-acre farm on the West Mountain, having an elevation of about 1,400 feet. The land is being worked and when fully developed the farm will furnish all the milk, eggs and garden produce needed. Since its opening the sanatorium has received 23 patients. Of these, two found homesickness a worse malady than consumption and left. Two others were unfortunately so far advanced that cure was not possible and had to be returned to their homes, where they both died a short time afterwards. This leaves 19 still under care.

Of these 19, a considerable number have improved so much that their recovery is certain. Medicines play but little part in the treatment. All live in tents and twenty-four hours a day in the fresh mountain air with good food is all that is necessary. The results have been very satisfactory.

SOCIETY PROCEEDINGS.

THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Semi-annual Meeting, held in the Academy of Medicine, New York City, October 13 and 14, 1903.

FIRST DAY—TUESDAY, OCTOBER 13, 1903.

Hepatic Drainage.—The first paper on the program was read by Dr. J. B. Deaver, of Philadelphia. Where there is pus in the biliary region it seems always important to drain. Purulent collections on the external parts of the body, where they can be watched, and where at the slightest sign interference can be secured, are nearly always drained if infection has taken place. How much more important is then precaution to deepen the abdominal cavity whenever there is pus in the biliary tract. The process undoubtedly saves many lives. Whenever there is ascending suppurative cholangitis drainage seems necessary. Acute cholecystitis—that is, infection of the gall-bladder, will often subside under medical treatment and does not need surgical intervention. If the affection ascends into the hepatic ducts, however, interference is needed, and drainage is advisable. The sign of an ascending infection is a persistence of jaundice. It is the custom to attribute too many cases of obstruction of the biliary ducts to the presence of stones. There are other important causes. Infection of the mucous membrane of the biliary duct often causes stoppage that may last for a considerable period. Dr. Deaver has found in not a few cases an enlargement of the gland situated at the junction of the biliary ducts. This gland may enlarge not only from malignant degeneration, but also because of an infective process. In cases where obstruction occurs it must not be forgotten that the pancreas may become infected and that pathological processes in the pancreas are prone to be lasting. Early surgical intervention, therefore, is of the greatest importance. Dr. Deaver gave the details of several cases in which infections were followed by serious hepatic symptoms which subsided after drainage. In one case the *Staphylococcus pyogenes aureus* was found in pure culture. After typhoid fever suppuration of the gall-bladder occurs not infrequently. The infection may take place during convalescence or even after all symptoms of the disease have been absent for a considerable period. The typhoid bacillus seems to have a particular liking for the biliary passages, and carefully collected observations made at the German Hospital during the past year show that in nearly all cases of typhoid fever, there is a distinct tenderness in the gall-bladder region. In three cases of gall-stones that have been under Dr. Deaver's care very recently, not only was there a history of typhoid fever, but typhoid bacilli were found in the bile. It is unfortunate, as a rule, to trust these cases to the process of nature, since not infrequently further extension of the infection will take place. In certain cases infectious processes may give the symptoms of gall-stones without any calculus having been formed.

Extension of Infectious Processes.—An English army surgeon has recently pointed out that multiple abscesses of the liver occur much more frequently as a result of neglect of infections of the biliary passages than has usually been thought. In one case one of these abscesses opened into the lungs and the patient coughed bile-stained sputum. An empyema operation was performed, and for a time the patient was improved, but there afterward occurred a further extension of the purulent process. A perinephric abscess was opened and proved to contain bile-stained pus. At the autopsy several large abscesses were found in the liver, besides an abscess in the lungs and one around the kidneys. Where extensions occur from purulent processes in the liver, patients usually succumb in about three weeks. It is evident in these cases that the only salvation for them is drainage after surgical treatment, and medical treatment can be of no avail.

Choice of Operations.—Dr. Deaver said that he had sometimes regretted having removed the gall-bladder entirely, but he has never had occasion to regret the opening of the gall-bladder and the employment of drainage. In all acute cases he prefers the latter procedure. Cholecystectomy is the more ideal operation, but cholecystostomy the more practical one. In acute cases particularly is this true, and there need be no fear of fistula, provided the biliary ducts are patulous. If, in one of these operations, infection of the liver has occurred, or is even suspected, then drainage must necessarily be employed. The appearance of the liver after a time indicates to the practised surgeon the occurrence of infection.

Some Opinions in Gall-surgery.—Dr. Deaver does not agree with Kehr as to the advisability of dispensing with drainage in calculus cases. Not infrequently the presence of a calculus itself is an index of previous infection that has not run out. Besides the irritation set up by a calculus usually makes a favorable nidus for microbic growth. Dr. Deaver does not consider that cholemia is nearly as important a factor in the death-rate as is sometimes thought. It is not bile in the blood, but the absorption of infectious material from the biliary passages that gives rise to the symptoms usually called cholemic. If medical men, who send their patients suffering from biliary symptoms to Carlsbad, would instead send them to a surgeon here in America, the results would be better and would be ever so much more lasting. Dr. Deaver is of the opinion that when in doubt the surgeon should drain just as when in doubt the players should play trumps.

In opening the discussion, Dr. Vander Veer, of Albany, said that he agreed with Dr. Deaver in the necessity for more frequent operations in biliary conditions and also in the advisability of drainage. The surgeons of this country have cleared up the pelvis and the conditions in the right iliac region, and now it is to be hoped that the same favorable result will follow in the biliary region. The diagnosis between true gall-stones and infections simulating gall-stones is not always easy. Dr. Vander Veer considered that posterior drainage is sometimes indicated in these cases, and has found it of the greatest service. The opening is made through the posterior peritoneal pouch. Now that drainage is used more generally, the results of biliary surgery will be better, and physicians will be ready to have their patients referred to the surgeon. If every physician would realize that when a jaundice has persisted for more than two weeks, the case must ultimately come into the surgeon's hands, there would be less delay in consulting with the surgeon in such cases.

Simple Drainage.—Dr. George R. Fowler, of Brooklyn, said that drainage is always an important element in biliary surgery. It is dangerous, however, to attempt to make this drainage complete by beginning from the hepatic duct, though this may seem the better in theory. A live patient with a fistula is always a better result than a dead one with a perfect system of

drainage. Dr. Fowler does not consider that posterior drainage is advisable. While it is mechanically ideal, it is often fraught with difficulties, especially where the posterior adhesions are thick. This is apt to be the case in patients with long-standing conditions, and it is especially in these patients that the operation would be indicated, if at all. Dr. Fowler considers that Kehr's dictum to let acute cholecystitis alone and give it over entirely to the medical man will not be found the best in many cases. The medical man must learn the lesson that has been taught by the experience in appendicitis, to share responsibility with the surgeon early, and gradually to educate the laity into the necessity for early operations in biliary cases.

Serious Infections.—Dr. Maas, of Buffalo, said that sometimes a generalized septic infection takes place from a suppurative process in the biliary tract. Obstruction of the gall-ducts by an infection leads to absorption, and in one case recently he found streptococci not only in the blood, but also in the cerebrospinal fluid. Obstruction of the ducts takes place not only from stone, but also from inflammatory swelling of the mucous membrane, though not infrequently this will subside after death, and at autopsy the ducts will be apparently patulous.

Drainage Not Excision.—Dr. Ford, of Utica, N. Y., said that in his experience in gall-stone surgery he always employed drainage, but hesitated about excision of the gall-bladder. The fact that a gall-stone was not found on operation was not always proof that the origin of a biliary inflammatory process was not due to a gall-stone. In a patient operated on not long ago, no gall-stone was found, yet, two years later, symptoms of obstruction of the intestines having occurred, at operation a large enterolith was found in the transverse colon. This had either ulcerated its way out of the gall-bladder before the operation or had formed a separate pouch, and, later on, without symptoms, ulcerated a passage into the intestines. Personally, Dr. Ford would prefer to have his own gall-bladder drained after opening, rather than excised.

Dr. Jacobi said that there is too much distinction made between the medical man and the surgeon with regard to these conditions. The surgeon should be not merely an operator, but a physician, capable of treating a patient and of diagnosing the exact condition present, as well as able to do the manual labor necessary for surgical interference. In these cases of gall-stones in which nephritis is present, it seems to Dr. Jacobi that the nephritis has been exaggerated by the irritative material found in the blood during cholemia. Usually the nephritis is the result of an infection early in life, for the infectious diseases of childhood leave a chronic nephritis much more frequently than has been thought.

Dr. Deaver, in closing the discussion, said that he was glad to find so many of his surgical friends agree with him, since he was sometimes accused of being a man who liked to differ from others and head a rebellion. With regard to posterior drainage Dr. Deaver has his doubts. The gynecologists after operating upon the pelvis, sometimes drain through the vagina. Whenever Dr. Deaver has had occasion to do this himself he has found that the postoperative morbidity was apt to be increased, and if the operation was performed in a hospital the resident physicians are apt to insist that the patient will suffer much more than if the additional opening for drainage were not made. It is important to avoid much manipulation in biliary surgery. The patients will perish if the surgeon attempts to do much. Even when the gall-bladder is quite friable, drainage is often better than any attempt at excision. Medical treatment in these cases practically always leads to the infection of other organs.

Treatment of the Underfed.—Dr. W. S. Ely, of Rochester, called attention to the number of patients, usually women between eighteen and thirty-five years of age, who come for treatment with manifold symptoms, and with the characteristic appearance of underfeeding and underweight that is evidently the basis of their ailments. Such patients are apt to be reasonably comfortable in repose, but miserable in activity. They are not hysterical, they have not been worn out by child-bearing or child-caring, and do not suffer from nerve tire or womb ills. Tonics in ever-changing combinations of strychnine, quinine and iron are for them like Tennyson's brook and "go on forever." Pepsin and pancreatin tablets are always by them, yet without result. They are a drag on their relatives and friends, and a nuisance to their physicians. They change their physicians frequently, and having exhausted the regular school, take to quack nostrums and the irregulars. Always without result. They become resigned at last to a life of chronic invalidism. An examination of their diet list, however, will show that the amount of food taken is hopelessly inadequate to support them. Bread and coffee in the morning, bread and tea, with a little meat, at noon, with perhaps a vegetable or two; bread and tea, with some sauce, at night. If told that what they eat is not equal in nutritive value to the two quarts of milk that the infant is supposed to take in the twenty-four hours, they will at once respond that they are unable to digest more. They have never eaten more.

Treatment.—The only hope for such patients is absolute rest and a diet of milk, chocolate and raw eggs. This is more satisfactorily accomplished in a hospital. Rest is necessary so as to divert all their nerve force to their digestion. At the beginning they should have a quart of milk, a quart of chocolate made in milk and six raw eggs. Every physician has patients who cannot take milk, and yet very few patients will be found to be absolutely hopeless to milk if proper care is taken. Many patients are ruled by their stomachs, and sometimes these same stomachs rule their physicians. The mind has not a little to do with stomachic conditions, and some patients become so seasick that even before sailing they throw up in their staterooms. Discipline and training are important for these patients, and will be of the greatest service. It is expected that there will be much objection to this method. Different modifications of milk will have to be employed. Of course, there will be complaint of fulness and discomfort, which can be varied by various methods. Milk may require to be taken so slowly in what some patients call masticating it. Chocolate should be taken almost as slowly. A glass of milk or a cup of chocolate should be given every two hours during the day, and every three hours at night. A moderately coated tongue may be looked for. Rhubarb and soda tablets, from six to twenty per day, should be given, as may seem necessary, in order to keep the bowels open and the stomach sweet. They seem to serve as an aid in the digestion of milk. The patient should be weighed weekly, or semi-weekly. No gain need be expected during the first week, but there should be a gain of from one to three pounds per week for twelve weeks after that. There should be a gradual increase of the amount of milk taken by small increments until from four to six quarts per day are consumed. Patients stand this quantity of nourishment very well, but a curious element in these cases is that the excess of nutriment disagrees and is rejected after the patient gets up to the normal weight. One of the most important factors of the treatment is the education for the future. Needless to say, all patients should have

confidence in their physicians, otherwise the treatment need not be begun, as it would be a failure. The fact of the matter is that man's reason seems not so good a guide as to variety and amount of food required as is the instinct of the animal.

Low Blood Pressure.—Dr. E. B. Angell, of Rochester, said that it is useless to put coal on the fire, unless the ashes are removed from beneath. It is useless to overfeed patients unless sufficient oxygen is supplied them to burn up the nutritive material taken in. Dr. Angell has found a distinct decrease in blood pressure in underfed patients, which markedly differentiates them from the neurasthenics, who have increased blood pressure. This seems to be due to the fact that the indoor life led by these patients does not supply them with sufficient oxygen for proper metabolism. The most important correction then is to see that they get sufficient air.

Dr. Fisher, of New York, said that many of these underfed cases are seen by the neurologists, as neurology has become the dumping ground for whatever is indefinite in medicine. The rest cure is undoubtedly of benefit in these cases, but anyone who expects to help every case will be sadly disappointed. It is impossible to foretell what cases will be benefited, though many of them do well. It is not unusual at this season of the year to have patients who have failed to be benefited by the rest cure during the preceding winter, come back from their summer vacation, having gained twenty to twenty-five pounds in weight and feeling much better. The gain in weight, however, does not always necessarily bring with it lack of symptoms. After a very short time these people revert to their previous condition of inability to lead an active life.

Dr. Ely, in closing the discussion, said that no one realizes the necessity for fresh air more than he does himself. He has the habit of always asking patients just how many hours per week they spend in the air, and then points out to them what relation their six to ten hours of open air bears to the hundred and sixty-eight hours of the full week.

Mental Exercises and Disease.—Dr. M. A. Veeder, of Lyons, read a paper on certain faculties of the mind that are not understood and not sufficiently used with special reference to the exercise of these faculties for the relief of epilepsy. He called attention to the fact particularly of a number of rudimentary faculties as certain special senses with regard to direction, lapse of time, as in the possibility that some people have of waking at a certain hour, and special sense of number. There are in the mind certain faculties that can be brought by special exercises and that help to the control of such nervous explosions as epileptic seizures are. He pointed out the value of such exercises as important in suggestive therapeutics, and gave the details of some cases of epilepsy that had been benefited by this method.

Dr. Edward Fisher, of New York, said that epilepsy as an organic disease of the brain, affecting very probably the brain cells, could not be modified to any noteworthy degree by mental training. There had been no little disappointment as to results in this direction obtained at Craig Colony and Bielefeld, in Germany.

Dr. Angell, of Rochester, said that Dr. Veeder's suggestions are as yet too theoretical to be of much practical use. It is nothing new in psychology that he was introducing, but rather something new in terminology.

Dr. Veeder said, in closing the discussion, that he did not expect to cure epileptics, but to relieve their symptoms by producing compensatory effects upon their nervous systems.

Vaccination and the Law.—Dr. Nelson G. Richmond, of Fredonia, detailed some of the difficulties of enforcing vaccination under the present law. He suggested that in England, as the result of the conscience clause exception to the vaccination act, some of the opposition to vaccination had disappeared. This conscience clause had been inserted with the approval of such thorough believers in vaccination as Paget and Lister. He suggested the advisability of modifying the law so as to make it less radical than at present.

Dr. Jacobi, of New York, in discussing the question, said that the State is responsible that a man's neighbors shall not expose him to the danger of smallpox by refusing to be vaccinated. It is the lives of citizens that may be saved rather than the sparing of the whims of cranks that is the function of government. Any change in the present law in the line of making exceptions is sure to do harm rather than good.

Cure of Opposition.—Dr. J. O. Roe, of Rochester, reported a case of radical cure of opposition to the vaccination law. The subject was a physician who was bitterly opposed to vaccination, contracted smallpox, was sent to the pesthouse, and there had the opportunity to study personally the statistics of the unvaccinated who come down with smallpox. He came out an ardent advocate of vaccination.

Otitic Serous Meningitis.—Dr. Francis Huber, of New York, reported a case of serous meningitis following otitis in which, notwithstanding an unfavorable prognosis, recovery followed promptly upon lumbar puncture and the removal of the pressure upon the nervous centers by the collection of serous fluid.

AFTERNOON SESSION.

Therapeutic Uses of the Roentgen Rays.—The afternoon session was taken up by a symposium on the Roentgen rays in medicine. Dr. A. D. Bevan, of Chicago, opened the discussion with a paper on this subject.

Roentgen Rays and Malignant Disease.—Dr. Bevan said that in superficial cancer, especially superficial epitheliomata, the X-rays have proven to be of the greatest service. Experiments with the X-rays for deeply-situated cancers, however, have so far been without success. The utility of the X-rays for recurrent carcinoma is still in doubt, though nodular recurrences usually disappear promptly under exposures to the X-rays. The question whether, after operation, all patients who had been suffering from malignant disease should be treated by the X-rays is as yet open to discussion, and will require a number of observations before it can be decided. The effectiveness of the X-rays in malignant disease tempts the practitioner to their use, yet the lack of success in so many cases is discouraging. Dr. Bevan has experimented with the idea of finding out whether the liberation of certain resolvent substances in the tissues might not be of service in producing more lasting favorable results. The two substances that naturally come under this head are iodine and arsenic. The mere physical experiment of mixing a solution of potassium iodide with starch, and exposing it to the X-rays shows that much more iodine is liberated under the influence of X-rays than in a test solution which has not been exposed to the rays. In one case of inoperable mouth carcinoma, Dr. Bevan tied both carotids and used the X-rays at the same time that considerable doses of potassium iodide were administered. The result was the disappearance of the cancer with no recurrence up to the present time. A case of actinomycosis of the neck, treated with combined potassium iodide and the X-rays also did very well.

Applicability of X-rays.—They should be used in superficial epithelioma, especially of the face; secondly, after operation in order to prevent recurrences, and thirdly, in inoperable cases as justifiable experiments.

There are two dangers in their use. The first is the possibility of X-ray burn, a risk which can be reduced to a minimum by practice in the use of the X-rays; the second danger is the employment of the X-rays where they are not indicated, with resultant delay in the application of other measures of treatment. Many such cases are now coming under observation, so that it seems not too much to say, that, taken all in all, the use of the X-rays has done more harm than good.

The Roentgen Rays in Diagnosis.—Dr. C. L. Leonard, of Philadelphia, said that the use of the X-rays in diagnosis depends more on the expertness of the operator than on almost any other factor. Personally he has had a very wide experience with regard to the diagnosis of calculous nephritis, having examined more than three hundred cases in which he has found this method of diagnosis of very great service. In the two cases in which, after a positive diagnosis, there was a failure to find a calculus, the patients weighed over 200 pounds, and the diagnosis had been calculus or an incrustation of a portion of the pelvis of the kidney. In one of these cases, a mass of pus and crystalline débris was found. The ease with which calculi may be overlooked is illustrated by a case in which, at one operation, no calculus could be found, though carefully looked for, yet, two weeks later, at a subsequent operation, the calculus was discovered. In 45 cases in which a negative diagnosis as to calculus was made—that is, in which no shadow could be found on the plate, subsequent developments proved the diagnosis to have been correct. The total combined error of negative and positive diagnosis was less than two per cent., and the value of this method of diagnosis was greater than any other. One of the sources of difficulty was well illustrated by a case in which calculi were declared to be present, but examination showed the existence of eight phleboliths in the veins of the broad ligament. These veins had become varicosed and thus given rise to the lithic formation. The patient had suffered from vague discomforts not unlike nephritic calculus in certain ways, and the operation was indicated. After removal of the phleboliths, no further discomfort was felt. Five years ago, Dr. Leonard claimed that the X-rays could be used successfully for the diagnosis of calculi. Further experience has confirmed this first idea. Where there are clinical symptoms apparently of renal calculi, negative diagnosis justifies expectant treatment. On the other hand, where there are no symptoms of calculi, yet vague disturbances pointing to some abdominal pathological condition, calculi can be detected and purulent collections in the renal pelvis prevented. This method of diagnosis guards against certain dangers in operations also, as, for instance, in cases of multiple calculi, when one or more stones are found the operator may not search sufficiently, and leave others in place. In the same way there may be stones in both kidneys. This is much more common than used to be thought. When pus is present in the kidney this can often be recognized by the shadow. At times the mottling of a shadow reveals the presence of tuberculosis, or of cystic degeneration of the kidney.

Sarcoma and the Roentgen Rays.—Just a year ago, Dr. Coley said that he called attention to the folly of talking of cures of malignant disease in cases that had been under observation only weeks or months. Now, as the result of over a hundred cases of sarcomata, treated by means of the X-rays, he is sure of his previous position in the matter. In a number of cases treated by him, improvement occurred almost at once under the X-rays, but not infrequently, after four or five months there was a recurrence of the original growth or metastases were noted. Dr. Coley again showed a patient exhibited last year in whom there was a sarcoma of the femur that had retrogressed very favorably under exposure to the X-rays, though there were still some signs of the morbid process in the leg. A sarcomatous process had begun in the clavicle and ribs, however, that threatened to be fatal. In another case of sarcoma that had been improved by exposure to the X-rays, metastasis took place to the lumbar region. Under the influence of the toxin treatment, however, this softened and the patient is in reasonably good condition. In malignant disease of the cervix, exposure to the X-rays brought about an apparent cure, but after a year there was local recurrence. In a severe case of Hodgkin's disease, which came under observation in September, 1902, Dr. Coley last year reported a decided immediate improvement. This improvement continued to such an extent that the man was able to go back to his business and the spleen particularly became reduced to its normal size. In April, 1903, however, the liver became very much enlarged and intense jaundice developed. At the end of about a month after this the patient died. This corresponds with Dr. Francis Williams' experience in Boston. In his case the improvement was followed by death in about six months. Nodules of recurrent carcinoma, especially of the breast, disappear kindly and promptly under exposures to the X-rays, but recurrences are the rule. In one case the sternum and ribs became involved and a fatal termination took place.

Dangers of X-ray Treatment.—There are, in Dr. Coley's opinion, two serious dangers in the use of the X-rays. The first of these is the possibility of causing dissemination of the malignant process or even causing it at times to take on irritatively a more rapid growth than would otherwise be the case. When a malignant process has been exposed to the X-rays and has decreased in size and then takes on a new growth the surgeon may not realize how widely he must cut in order to remove all the malignant tissues. A case illustrating this has recently been under Dr. Coley's care. The patient suffering from epithelioma of the lip was treated by the X-rays and the tumor disappeared. After some months it recurred, however, and then the X-rays had no effect upon it. It now began to grow rapidly, and was almost inoperable when the man came for operation. The X-rays seem to be especially indicated, in Dr. Coley's opinion, for epitheliomata of the face, especially situated near the eye and the nostril where operations are sure to prove so disfiguring.

X-rays and Finsen Light.—Dr. Hopkins, of Brooklyn, said that he has never tried the mixed treatment of the X-rays and potassium iodide, as suggested by Dr. Bevan, but has found the combination of the X-rays and Finsen light very useful. How important a therapeutic agent the X-rays are can be judged from the fact that in a woman pregnant in the seventh month, from whom the breast had been removed for cancer, six nodules of cancerous material appeared in the scar, owing to the physiological condition of the breast evidently. These disappeared promptly under the use of the X-rays. Dr. Hopkins considers that the name X-ray burns is a bad title, since the lesion produced is entirely unlike a burn. It is by no means necessary that the skin should be affected, yet a serious condition of the underlying tissues may be produced. In the practice of others Dr. Hopkins has seen white gangrene occur beneath an unbroken skin. The burns of radium deserve much more that name. There is in the X-rays a very powerful agent, but its limitations are not as yet understood.

In cervical cancer Dr. Hopkins has found the X-rays and the Finsen light of service. In one woman brought

to him, the slightest movement caused hemorrhage. It is now over a year since she came under treatment and there are no signs of the malignant process left.

Not Replace Knife.—Dr. Ford, of Utica, said that the X-rays must never be considered to replace the knife. Even in skin cancer it is best to excise rather than trust to the X-rays. In recurrent cancers of the breast the nodules clear up for a while, but the disease returns. In cancer of the cervix, failure has been the rule in Utica. The X-rays do not cure cancer, but they delay neoplastic growth.

Dr. N. Vander Veer, of Albany, considers that X-rays do good, but do not cure. One of their most prominent features is that they afford relief from pain. Occasionally after operations upon the breast, before any nodules of recurrent cancer can be seen, painful conditions develop. These are relieved by exposures to the X-rays. In Dr. Vander Veer's hands, the X-rays from a static machine have seemed to give better results than those from a coil. The coil is reserved for work upon the trunk. The danger of the present use of X-rays is that they may serve to delay the employment of more hopeful measures of treatment. There is much more danger in delay than in anything else and recently he has seen several cases in which patients were promised relief and none was afforded.

X-rays and Cataphoresis.—Dr. Lee, of Brooklyn, said that he has been told of a case in which formalin and formaldehyde were employed in addition to the X-rays, the substances being carried into the tissues by a sort of cataphoretic action. Considerable success has been obtained with this method of treatment. Dr. Lee considers that there is more danger of general infection following the too rapid breaking down of the tumor after exposure to the X-rays than is usually considered. In a patient under his care, two years ago, treatment by the X-rays was followed by rise of temperature, nausea, headache and the patient's death was attributed to metastasis to the base of the brain.

Reaction in Opinion.—Dr. Bulkley, of New York, said that while the X-rays undoubtedly do good in certain cases, a certain reaction against the abuse of them is sure to be of benefit at this time. Experience has shown their positive value, which is superlative for superficial epitheliomata and for rodent ulcer. Epitheliomata situated near the angle of the nose or close to the eye are almost sure to be followed by distressing disfigurement. No treatment succeeds so well in avoiding this as the X-rays. The mildest paste that will be efficient does not succeed nearly as well.

Dermatological and Surgical Epitheliomata.—Dr. Bevan, in closing the discussion, said that the class of epitheliomata that come to the surgeon are, as a rule, much severer than those which come to the dermatologist. It is in the mild attacks that the X-ray treatment is most effective. The postopefative use of the X-rays, though their utility has not been demonstrated absolutely, seems worth while. The X-rays are undoubtedly of service in the diagnosis of stone in the kidney and the failures with this method are due to the crude manner in which the X-rays were applied. Certain points in technic, as suggested by Kümmel, are important. An enormous coil should be used, rather than the static machine and slow tube. The plate should be placed under the lumbar region and the neck should be bent so that the lumbar spine is brought closely into contact with it. The kidney region should be covered, all except an area about the size and shape of the kidney, with a lead plate. This allows of no diffusion and gives very clear shadows. The plate should be examined by transmitted light with an opera-glass at a distance of about 12 feet. One plate is never enough to make the diagnosis. The shadows should be found at least on two plates and as many as eight plates may be needed at times for assurance sake.

Some Technical Points.—Dr. Leonard said that in 50 per cent. of the cases, if a lead plate as described by Dr. Bevan were used, the stone would not be found, as they occur not infrequently in the ureter. The most important bit of technic is that the plate should be put to the front of the patient and the tube applied diagonally so that the shadows within the kidney are not superposed on the bones of the pelvis. Dr. Leonard has found sarcoma of the tonsils amenable in several cases to the action of the X-rays. Obstruction of the esophagus, due to a mediastinal growth, also grew rapidly better under the X-rays. Very recently neuralgias of the head and face, long standing and obstinate to all other treatment, have yielded to a few applications of the X-rays.

Dr. Coley, in closing the discussion, said that the knowledge so far obtained with regard to the X-rays does not justify their use in deap-seated cancer, nor their employment before excision has been attempted in cases where the growth is favorably situated for this. To say that all malignant growths should be submitted to the X-rays first for some time is to invite dangerous delay and to make the ultimate prognoses of the cases much worse than they would otherwise be.

Legal Status of the Roentgen Ray.—Hon. William W. Goodrich, Presiding Justice of the Second Department of the Appellate Division of the Supreme Court of the State of New York, delivered an address on the legal aspect of the use of the Roentgen ray. The first decision based on the legal custom that an ordinary photograph, if relevant and properly authenticated, can be taken in evidence, was made for the X-ray photographs by the Supreme Court of Colorado in 1896. The principle announced by the Justice for the admission of such photographs, was that as medicine advances, law must also advance, and if medical science shows beneath the skin as formerly photographs did the surface of the body, then this method must be admitted as of evidential value. The next decision was made in Tennessee, and on these decisions the recent practice is based, it being considered necessary, however, for such photographs to be verified by an expert of determined qualifications. With regard to X-ray burns the same rule of law holds as with regard to other medical practice, the physician is bound to treat his patient with such skill as is usual in the time and place where the treatment takes place. And this rule of law is upheld by various decisions.

At the evening session of the first day the following committee on reunion was reappointed by unanimous vote with full powers to treat with a corresponding committee from the New York State Medical Association for the corporate union of the two organizations: Dr. Henry L. Elsner, of Syracuse; Dr. Abraham Jacobi, of New York City; Dr. H. H. Vander Veer, of Albany; Dr. Frank Van Fleet, of New York City, and Dr. George R. Fowler, of Brooklyn.

(To be Continued.)

GERMAN SURGICAL SOCIETY.

Thirty-second Congress, held in Berlin, June 3, 4, 5 and 6, 1903.

Distribution of Arteries in Bone.—Despite many experiments upon the development of tuberculous and purulent foci in bone it was difficult to explain why certain bones or parts of bones formed sites of preference. By demonstrating a number of X-ray photographs of bones of young infants whose vascular system was injected with mercury, Lexer was able to show that a

close relationship existed between the position of the lesion and the course of the vessels. In the long bones three vascular systems can be distinguished, the nutrient artery, whose branches extend to the spongy end of the diaphysis, a number of small branches piercing the cartilage between epiphysis and diaphysis and ending in the epiphysis and finally the epiphysial vessels which enter from all sides and either penetrate the joint cartilage or extend into the diaphysis. With increased growth, the anastomoses between these systems become more and more abundant. Tuberculous emboli will be lodged most frequently in the epiphysis, cartilage or upper end of diaphysis because here the finest subdivisions exist. In the phalangeal and metacarpal bones an embolus will hardly be able to travel very far toward the epiphysis in the small nutrient artery, hence the diaphysis is frequently the seat of the tuberculous lesion. The vertebræ possess two large vessels which extend from behind forward. They explain the occurrence of wedge-shaped tuberculous foci with their base anteriorly. In the ribs there is a long, slender nutrient artery which is met in front by a perichondral vessel. In the scapula and pelvic bones the lesions also correspond in position with that of the finest branches. The special predisposition of young individuals can only be explained by greater vascularity.

Diagnosis of Bone and Joint Tuberculosis.—The paper of K. Ludloff deals with the possibility of making an early diagnosis of tuberculosis of the knee by means of the X-rays. In the normal knee he found protuberances at the osteochondral junction of the mesial condyle at the age of two to four years and in the same region of the lateral condyles during the fourth and fifth years. By lateral transillumination a transparent epiphyseal spot is noticed in the front part of the condyles from the first to the fifteenth year. In early tuberculosis characteristic changes are present. The protuberances appear smaller or disappear, bony projections extend from the lower surface of the femur to the tibia, the condyles seem swollen, the epiphyseal spot is larger, more transparent, deprived of its cancellous structure and with sharper contours and the patella, head of tibia and fibula increase in size. When reparative processes go on, the epiphyseal spot will again become cancellous in structure. In simple atrophy these changes were never found.

Glandular Disease of Barbadoes.—This peculiar condition generally begins with a varicose swelling of the glands in both groins which may progress until cystic tumors the size of a man's head are found here. In the rare generalized form, the thoracic duct is involved and the glands of the neck and axillæ are also enlarged. The symptoms vary within very wide limits: a few patients develop a most intense cachexia with fatal termination, the majority complain only of nausea and gastrointestinal disturbances, while in others the disease disappears spontaneously as the patients get older. Sometimes the glands break open and the suppuration of the entire lymphatic system is apt to supervene. The cause of the disease is the filaria which penetrates the skin over the inguinal glands and obstructs the lymph-sinuses. H. Gross states that there is also an indigenous form not caused by the filaria, and six cases have come under his observation in four years.

Results of Asepsis in Wound Treatment.—Primary union was obtained by A. G. Neuber in 97.5 per cent. as compared with 88 per cent. in the year 1884. Infection, where present, was generally caused by gangrene of poorly nourished fascia and this interfered but slightly. In resection for severe joint tuberculosis and in injuries with contused and contaminated raw surfaces, the wound was only partially closed and the rest tamponed. All wounds were completely dried before sutured. Larger operations were interrupted every ten to fifteen minutes by short intervals for cleaning instruments, skin and hands. Torsion or compression took the place of ligatures where possible. Great stress was laid upon care of the hands. During septic operations rubber gloves were used. The dressing of wounds was very simple for small wounds, loose gauze held in place by adhesive plaster; for larger ones, gauze and then a layer of specially prepared felt.

Antiseptic Action of Iodoform.—That iodoform per se is not an antiseptic and that it requires the addition of living tissue to exercise a germicidal action, is well known. B. Heile shows that an emulsion of tissue plus iodoform will not kill bacteria unless the air is kept away from the mixture. Liver has the greatest reducing power, brain and fat the least, spleen, kidney, lungs and blood occupy an intermediary position. Granulation tissue behaves like the organs, but tuberculous granulations are especially active. The bactericidal substance split off is not iodine or iodide, but probably the organic compound di-iodo-acetylene. These experimental researches correspond very well with clinical observations for iodoform is of little value in superficial wounds, but most efficient in deep cavities where air cannot penetrate. Where conditions are especially favorable the action may be so strong as to be actually caustic.

Action of Local Irritants and Local Application of Warmth.—A series of interesting experiments carried out by K. Wessely add considerably to our knowledge of the active curative agent when local irritants such as warmth are allowed to act upon diseased parts. The eyes of rabbits proved to be especially favorable objects for study. A hyperemia sets in and the albumin in the aqueous humor rises from one-fortieth per cent. to one-half per cent. when applications at a temperature of 50° to 60° C. were used. The immune bodies were also found increased; thus, when animals protected against typhoid were employed, the powers of agglutination were increased ten to twenty-fold. The conjunctiva seems to have the same property, for if expressed after the use of warm applications, the albumin rose from one-fifth to one-half per cent. in the transudate. Where hyperemia was rendered impossible by the use of adrenalin, these phenomena were not observed. The speaker believes that in treating local diseases (such as an ulcer of the cornea) there is a decided advantage in combining serum treatment with measures able to bring about a congestion of the parts.

Artificial Substitute for Blood.—H. Küttner has tried various isotonic solutions with or without the addition of adrenalin, in acute anemia, but finds that none are superior to the ordinary physiological salt solution. If, however, the animals were kept in an atmosphere of pure oxygen after the injection, it was possible to save them when as much as 3.5 per cent. body weight of blood had been lost. The experiments were especially successful if the oxygen was under pressure. The most rational method would be to introduce the gas directly into the veins, but for man, at least, this is risky. Hence it is suggested to saturate the fluid injected, with oxygen and a special apparatus for this purpose was demonstrated. In addition, the body must be kept warm and oxygen given freely by inhalation. This method also finds employment in hemorrhagic diathesis, and in preparing run down individuals for laparotomy.

Apparatus to Control Pulse during Narcosis.—Since syncope is the most frequent cause of death in chloroform narcosis and since it is impossible for the anesthetist to continually keep his attention directed upon the pulse by touch, G. Gaerter has constructed a simple apparatus to be adjusted at the wrist which permits one to keep a steady control of frequency and ten-

sion of the pulse during the entire operation. Slight changes are detected with it much more readily than with the fingers and excursions are still noticed when only the stethoscope will decide that the heart is still beating. A quick, tardy or irregular pulse can also be diagnosed. The adjustment is very simple and the arm may be in pronation or in supination.

Anesthesia by Interrupting Conductivity of Nerves.—Solutions of cocaine and allied substances can be used by peri- or endoneural injection to interrupt the conductivity of nerves. An excellent local anesthesia is thus brought about, according to Braun. Endoneural injections are generally possible only after the nerve trunks have been dissected out with infiltration anesthesia; this would prolong the operation quite extensively for amputations, but in inguinal hernias, varicose veins, operations on the anterior aspect of the neck, the time lost is generally slight. For perineural injections, concentrated solutions are necessary unless adrenalin is added (1 to 2 drops of the commercial solution to every cubic centimeter of one per cent. cocaine solution) or unless the extremities are tied off. In mixed nerves the motor and often the vasomotor nerves are often paralyzed as well. An accurate knowledge of the nerve distribution is absolutely necessary. For superficial nerves, a one-half per cent. eucaine solution with adrenalin seems to be best. It may take up to thirty minutes before anesthesia appears; it generally lasts two to five hours.

Enderlen saw a fatal result after 6 c.cm. (1½ drams) of a one-per-cent. cocaine solution with 6 drops of adrenalin. Trying it upon himself he obtained absolutely no effect. Perthes could perform many operations upon fingers and toes, extraction of teeth, tendoplasty, etc., successfully without after-effects.

Dangers of Trendelenburg Position.—In two cases of bladder disease, operated upon by Kraske, the Trendelenburg position was directly responsible for the fatal issues, probably owing to the pressure of the abdominal contents upon a degenerated heart. In two cases (both stout males) intestinal obstruction followed, in one of these there were hemorrhages and erosions in the stomach, probably due to pressure of the displaced omentum upon the portal vein. Kraske thinks the Trendelenburg position is absolutely contra-indicated in myocarditis and obesity.

Trendelenburg himself states that he has never seen cardiac paralysis or intestinal obstruction, but gastric hemorrhages may occur. In the obese the position has little value and should not be used. A special table is recommended which permits of rapid change of position.

Von Eiselsberg has seen an apoplectic attack four days after the operation in a stout patient.

König warns against using the Trendelenburg position with intra-abdominal abscesses since the pus may flow into the free peritoneal cavity.

Lauenstein narcotizes in horizontal position and lowers the table as soon as possible. Paralyses of the peroneal nerve he avoids by a specially constructed shoulder support. It is wrong to blame postoperative ileus upon the position since it may also occur where the pelvis is not raised.

Trendelenburg fears only emesis with full stomach since the patients are very liable to aspirate.

Heidenhain and Rotter always keep the head elevated.

Goepel recommends a special table which permits of any position without endangering asepsis.

Transplantation of Vessels.—The following experiments were tried by Höpfner: (1) Removal of a piece of an artery, reimplantation in the reverse direction or into a defect of another artery of the same or a second animal. (2) Implantation of a piece of vein of the same animal into an arterial defect. (3) Implantation of arteries from animals of other species. Only one was successful. After thirty-nine to ninety-one days the implanted portion pulsated with the vessel, the lumen was not stenosed, though the walls were much thickened. In another series of experiments entire limbs were amputated and then the bones, muscles, chief vessels and nerves and skin again united. In the first attempt, the vessels became thrombosed within twenty-four hours and gangrene set in. The second dog died in narcosis eleven days after the operation, while the dressing was changed, but dissection showed that the experiment was crowned with success. The muscles and vessels were firmly united and only the bone showed little tendency to grow together.

Payr feels gratified that his method of vascular suture has given such good results. He does not, however, believe that a kidney can be replaced by the same organ of a second animal by vessel suture. In one instance he had occasion to resect 5 cm. (2 inches) of the femoral vein and suture the ends with a good permanent result.

Influence of Roentgen Rays upon Epithelial Tissue.—Perthes has repeatedly observed the disappearance of ordinary warts under the influence of X-rays. They will first flatten and harden and in twenty to twenty-five days drop off. The microscopical changes in the wart correspond with those seen in the normal skin. In three cases of superficial carcinoma of the face the ulcer was converted into a granulating surface which rapidly cicatrized. In six cases of breast cancer the metastatic glands under the skin became smaller and disappeared with only slight reactionary inflammation on part of the skin. After ten days the epithelial cell appeared swollen and the nuclei stained less distinctly. The actual number of cells diminished and connective tissue cells and leucocytes extend into the cancerous tissue. The breast tumors themselves could not be cured, but they became distinctly smaller under treatment. Normal epithelium is also inhibited in growth since raw surfaces are covered less rapidly when exposed to the rays. Soft tubes emit rays which are more active upon the surface while those of hard tubes have better penetrating powers.

Lassar recommends the rays from tubes of medium softness for the dermatitis of physicians and also for persistent eczema of the hands.

Kümmel has seen a carcinoma develop as a result of prolonged exposure to the X-rays.

Use of Hard Paraffin, especially for Hernias.—The contribution of Eckstein deals with the use of hard paraffin, which he prefers to vaseline, since it solidifies more rapidly, is not absorbed, remains where injected and never irritates. In filling up bony defects, the adherent skin should first be dissected from the bone. Umbilical and direct inguinal hernias as well as hernial tendencies can be easily treated by means of paraffin. In indirect inguinal hernias the conditions are not so favorable, since the intestines strike the paraffin at a tangent, but much relief can be afforded if a truss is worn at the same time. In young infants the melting point should be no higher than 50° C. and the ethyl chloride spray should be used. Pulmonary emboli have never been seen by the speaker.

Gersuny thinks that paraffin injections in hernias should be restricted to those cases where a radical operation cannot be done. He does not believe that much can be accomplished in umbilical hernias of children. The technic is more difficult than with soft paraffin, but the danger of embolism less.

Case of Total Scalping Healed by Thiersch Skin-grafting.—By means of extensive skin-grafting Karg was able to cover completely a large defect upon the head. The new skin is firm and movable upon the underlying structure, but there is no growth of hair and the sense of touch is somewhat diminished.

Echinococcus of the Skull.—There are only four cases of echinococcus of the skull on record up to the present. In three of these the parasite was seated in the frontal sinus, and in one at the base of the skull. A. Stolz has recently observed a case of *Echinococcus* hydatidosus where the dura was separated from the bone over a wide area and the skull itself perforated in several places. The largest bony defect was situated upon the vertex of the skull and was 16 cm. long and 5 cm. broad. The course of the disease was exceedingly chronic. The first symptoms (cerebral compression, atrophy of the optic nerve and abnormal growth of the skull) made their appearance during the eleventh year; fourteen years later epileptic convulsions were noticed and after ten more years distinct tumors developed upon the skull. Suppuration of the cysts twenty-seven years after the onset, made an operation necessary. The patient died three weeks after operation, and at autopsy an advanced internal hydrocephalus and a non-parasitic cyst in the right hemisphere were found.

Hyperalgesic Zones with Bullet Wounds of the Head.—In four cases of bullet wounds of the head, Wilms noticed very tender zones about the occiput and neck which did not correspond to peripheral nerve distribution, but to the areas innervated by cervical segments. Wilms believes that in all these cases the intracranial course of the sympathetic fibers around the cavernous sinus and carotid artery was irritated and that this irritation was reflexly carried to the sensory centers in the cervical region by way of the many anastomoses which connect the sympathetic with the cerebrospinal system. In the cases with favorable termination, the painful areas disappeared completely after eight to ten days. Müller has observed the same pain on removing sutures after a mastoid operation.

Traumatic Defects of the Skull and Their Treatment.—Bunge followed up a number of cases that had been under treatment for loss of substance of the skull in order to ascertain the best treatment. In 13 cases the defect in the bone had not been closed; of these, four were suffering from traumatic epilepsy, six complained of spots in front of the eyes, vertigo, headache and attacks of syncope; only 3 were free from symptoms one and one-half years after treatment. Where the defect was closed primarily, absolutely no untoward symptoms were complained of, though intracranial pressure was found increased before operation. Where the defect was closed secondarily, all disagreeable symptoms vanished. The technic is very simple: the removed splinter is simply reimplanted.

Surgical Treatment of Non-traumatic Jacksonian Epilepsy.—In non-traumatic epilepsy, surgical interference must be restricted to those forms where character and order of convulsions make it probable that certain definite centers of the sensory-motor region are primarily irritated. In the four cases reported by F. Krause cysts, scars or chronic leptomeningitis was found; in all, the operation was a complete success and the mental faculties have improved steadily. Krause first determines the position of the center involved upon the skull and then removes a rather large piece of bone over this center. Even if the dura is normal and pulsating, it should be incised. Where gross lesions are not found in the cortex the center should be carefully isolated with the faradic current and the cortex, then incised or punctured in the hope of detecting a subcortical cyst. If nothing is found, the center is simply excised down to the white matter. The resulting paralysis or anesthesia will be only temporary and one need not fear subsequent scar-formation over the site of operation. Cases without gross lesions in the cortex are the most unfavorable, yet excision is justified since the condition is sometimes ameliorated and never aggravated.

Lymphnodes of the Cheek.—These lie next to the facial artery and the facial vein as supramandibular gland upon the outer surface of the lower jaw or in the substance of the cheek itself in a line connecting the angle of the mouth with the lobule of the ear, either upon or beneath the buccinator muscle (anterior and posterior buccinator glands). H. Küttner finds that they are placed in the course of the lymph-channels which drain the external nose, lips, the region of eyes, cheeks and temples, the mucosa of the cheek, the alveolar process of the upper jaw, the parotids, gums and tonsils. They may be the seat of acute or chronic suppuration or may enlarge with malignant lymphoma or cancer of the neighborhood. They are most frequently swollen with caries of the teeth and have been seen involved after a chancre of the lips, carcinoma of the outer nose, lower lip, face; more rarely of the alveolar process of the upper jaw and the parotid. It is of the greatest importance to examine these glands in all malignant disease of the face.

Apparatus for Fractures of Lower Jaw.—Warnekros demonstrates an interdental splint of caoutchouc which covers only the lateral surfaces of the teeth. Its labial and lingual surfaces are connected by means of gold wire or caps which pass over the cutting surface. By means of these splints exact adaptation of the fragments without dislocation is possible and the patients are able to speak and chew almost immediately after setting.

Facial Paralysis Treated by Nerve Grafting.—The spinal accessory nerve was implanted into the paralyzed facial in one case by Hackenbruch; nine months later the patient could voluntarily move the angle of the mouth. The muscles supplied by the accessory did not suffer since only two-thirds of the nerve were used. In spinal paralysis of children the speaker also had good results; one-third of the tibial nerve was here implanted into the peroneal.

Körte has had successful cases where the hypoglossal was employed, but believes the accessory is more suitable.

Dollinger is careful not to employ those branches which innervate the sternomastoid; a partial paralysis of the trapezius is less noticeable.

Subcutaneous Extirpation of Tuberculous Lymphnodes of the Neck.—The incision which Dollinger recommends where a disfiguring scar is to be avoided begins at the level of the external auditory meatus and runs 6 cm. downward and backward, about 1 cm. from the hair-line. The glands are removed subcutaneously by the aid of an electric head-mirror. Primary union takes place even where the glands are accidentally ruptured. After extirpation the wound is sutured and drained. The operation is difficult and requires a good deal of experience. König thinks the method is unsuitable for softened or adherent gland.

Thyroid Fistulæ.—The usual causes of thyroid fistulæ are trauma, the presence of foreign bodies, strumitis, especially the metastatic form, infection after enucleation, chronic mycoses, echinococcus and neoplasms. In the majority the walls are thick and encrusted with lime. According to Payr the causes which prevent closure are tissue necrosis after infectious processes, lime concretions and rigidity of the walls. In position the fistulæ may be mesial or lateral. Their com-

plicated course often makes sounding difficult. The usual clinical signs are paralysis of the recurrent, disturbances of the sympathetic, tracheal stenosis, cyanosis, difficulty of breathing and swallowing, feeling of heat in the head and radiating pains in the neck. The fistulæ may be injected with bismuth and then X-rayed. The prognosis is generally good unless vessels are eroded, the trachea is perforated or a mediastinitis develops. The treatment (extirpation of the tract with the adjacent part of the gland) may be rendered very difficult.

Case of Idiopathic Dilatation of Esophagus.—Ettlinger's case was first diagnosed as carcinoma; since, however, the patient did well for seven years after gastrostomy, a dilatation was suspected. At autopsy a very large pouch was found, beginning at the junction of the upper with the middle third and extending to the cardia. The walls of the pouch were the seat of very marked chronic inflammation.

Intubation in Cicatricial Stenosis.—O'Dwyer's method is recommended by Ehrhardt in difficult décanulement in syphilitic and other laryngeal stenoses, instead of tracheotomy in some inoperable cancers of the thyroid and larynx and in laryngeal tuberculosis. Bad results were never seen.

Double Perforation of Thorax.—The woman demonstrated by F. Franke fell from a ladder upon a broom-stick and sustained a complete perforation of the thorax from one axilla to the other. An alarming subcutaneous emphysema appeared soon after the accident which required firm tamponade of the wounds. The patient made an uneventful recovery.

Resection of Thorax for Chronic and Tuberculous Empyemas.—Ringel believes in resecting the greater part of the thoracic wall where the cavity does not diminish in size on continued use of the apparatus suggested by Perthes. Disease of the opposite lung is a contraindication. Decortication of the lung increases the dangers of the operation and can generally be dispensed with.

Jordan recommends Schede's operation with Delorme's decortication. Resection of the scapula should be avoided since the function of the arm will suffer.

Rehn has seen cerebral embolism and bronchial fistulæ after Delorme's operation.

Perthes first fills the cavity with fluid. If all the fluid can be removed by aspiration, *i.e.*, if the walls of the cavity come together when suction is applied, an operation is not indicated.

Ringel concludes the discussion by stating that resection of the scapula cannot always be dispensed with. Completing the operation at one sitting is risky and Delorme's operation is only suited for tuberculosis of the pleura.

Heart Surgery.—The following patient presented was pulseless and in deepest collapse when seen by Schwerin. Injections of camphor and venous infusion had no stimulating effect and urine and feces were voided involuntarily. The heart was rapidly exposed when a stream of blood the size of a lead pencil gushed out of the right auricle. Digital compression and three silk sutures checked the hemorrhage. The pericardium was then sutured to the muscles, and it and the pleura tamponed. The patient is able to work at present, though he developed hydropericardium, empyema and pneumonia as a result of the operation.

Noll then showed a cured case of gunshot wound of the left ventricle. While the wound was sutured the heart was steadied by means of an artery clamp applied beneath the coronary artery. The pericardium was drained for twenty-four hours. At first, pulse and respiration were very much increased and soon an encapsulated empyema appeared which healed after twenty-eight days. The patient has been well now for six months. In cases of this kind, resection of one to three ribs is generally sufficient and large pieces of the sternum should not be removed for fear of bilateral pneumothorax.

Wolf believes the most common and serious danger is the development of an empyema.

Barth lays down the following rules: (1) It is not advisable to decide upon a definite preliminary operation to expose the heart especially since the pleura is generally injured anyway. It is best to enlarge the external wound and follow the course. (2) The pericardium should be completely closed wherever possible, since adhesions of the heart to the pericardium are thus avoided. (3) The heart should be sutured even where there is no imminent danger since an aneurism may form and subsequently rupture.

König thinks a special cardiac suture should be invented. The posterior surface of the heart should also be examined for injuries.

Cardiolysis.—The name cardiolysis has been applied by L. Brauer to an operation for the relief of chronic adhesive mediastino-pericarditis. Patients with this disease generally die soon of myocarditis, since the heart is unable to pull in the elastic, bony thorax with every systole for any length of time without degenerating. The operation consists in substituting a soft covering for the normal, bony wall in front of the heart. One patient died of broncho-pneumonia, but in two others the dyspnea, edema and cyanosis disappeared rapidly.

Simon states that there is great difficulty in choosing the proper anesthetic in such cases. Cocaine is not sufficient, chloroform still further embarrasses the heart and ether is liable to set up a pneumonia. In one case the ribs were resected, in two others also part of the sternum. The most difficult part of the operation is the removal of the posterior periosteum, since this is firmly adherent to the pericardium. Cardiac action must be regulated during the operation by means of digitalis and strophanthus.

Rehn thinks the relief will only be temporary, since new bone will form.

Brauer replies that this is improbable, if all the periosteum is removed.

Therapy of Dermoids of Anterior Mediastinum.—Von Eiselsberg states that it is generally advisable to do a complete extirpation. It may also be necessary to pull forward the collapsed lung and fix it to the wound. The outer wound must be closed by air-tight sutures so that the air in the pleural cavity is rapidly absorbed.

Case of Abnormally Movable Abdominal Muscles.—A strong, healthy man was exhibited by G. Muskat, who possessed the power of pushing the intestines upward so that cardiac and hepatic dulness disappeared completely. Parts of the muscles could be put on the stretch while others were relaxed so that the entire abdomen took on an hour-glass shape. The case proves that through skill and practice some people can innervate separately the physiological subdivisions of their muscles.

Lymph-channels of Diaphragm.—Both surfaces of the diaphragm are very abundantly supplied with lymphatics. Each half of the muscle constitutes a closed lymph-system. The vessels stand in free communication with those of the parietal peritoneum and the pleura, so that pathological processes can readily wander from abdomen into thorax. H. Kuttner finds that some lymphatics also perforate in the opposite direction so that a subphrenic abscess after an empyema may well occur; since, however, the peritoneum possesses

greater powers of resistance than the pleura, this course of infection is less common than vice versa. The diaphragm also stands in close lymphatic communication with the liver, especially its right lobe.

Pneumococcus Peritonitis.—The course of peritonitis induced by the pneumococcus is considered so typical by v. Brunn that a bacteriological examination is not necessary for diagnosis. Children are usually affected, and girls more often than boys. The onset is very acute with fever, abdominal pains, vomiting and generally diarrhea. Soon, however, the chronic stage supervenes with good general condition. But gradually nutrition will suffer and the abdomen will slowly increase in size. The fluid tends toward encapsulation in the meso- and hypogastric regions; it consists of odorless, greenish-yellow pus, rich in fibrin. Very often it discharges spontaneously in the region of the umbilicus. The prognosis is very favorable.

Von Beck saw four cases of this form of peritonitis, two after appendicitis and two secondary to gangrenous cholecystitis. He does not think the greenish-yellow pus is characteristic.

Leucocyte Count in Perityphlitis.—In catarrhal appendicitis with sero-fibrinous exudate, or in empyema of the appendix, there is a leucocytosis during the first two or three days which generally remains below 20,000 but, in case of empyema may reach 28,000. After the onset, the number of leucocytes drops parallel with the temperature. During the interval there is no leucocytosis. In circumscribed suppurative peritonitis, the figures at first lie between 20,000 and 30,000, and drop during the next five to six days to 10,000 to 15,000. If the abscess undergoes absorption these figures persist; if, however, the abscess grows, a rise up to 20,000 and more is noticed. In purulent peritonitis with insufficient encapsulation the leucocytosis is also high during the first days but there will soon be a fall to 15,000 to 20,000 despite the persistence of severe clinical symptoms. In acutely progressive peritonitis, as many as 20,000 to 30,000 cells are counted during the first twenty-four hours. Still higher figures are obtained up to the fourth day after which there is a fall to 10,000 or less. Patients with high leucocytosis generally give a favorable prognosis, those with low figures usually die. Counts after operation are valuable for the detection of secondary abscesses or ileus. On the whole, Federman thinks that combined with the clinical symptoms, the bloodcount is most valuable to determine the true pathological lesion.

Early Operation in Epityphlitis.—Payr gives the following résumé of his discourse upon the advisability of early operation. (1) The usual statistics on this subject are of little value since the cases vary within wide limits. (2) The existence of a large number of cases which demand immediate operation, is conceded more and more. This refers especially to those cases where the appendix is drawn away from the cecum toward the middle line where adhesions are formed less readily. The topographic diagnosis is thus of as much value as the diagnosis of the pathological condition of the appendix. (3) Immediate operation in all cases with severe onset forms the safest measure to avoid mistakes.

Körte objects to leucocyte counts, since there are many exceptions to the rule, especially in the acute cases and since the ordinary practitioner will hardly be in the position to have recourse to this method.

Riedel believes that all cases should be operated five to ten hours after the onset of abdominal pain. Fatal cases would then disappear entirely from statistics.

Radical Operation of Herniæ in Children.—Maass found a new-formed peritoneal sac in 47 out of 66 inguinal hernias and was always able to dissect it bluntly from the other hernial coverings. Even in older children it was unnecessary to narrow the ring. The skin should be sutured completely and covered with collodion. In one case the testicle was removed for necrosis. Torsion and ligation of the neck of the sac are generally impossible in umbilical hernias because the ring is too broad; the tobacco-pouch suture of the peritoneum and ring are best here. In nurslings an operation is not indicated, since spontaneous cure is common and a narcosis is too risky.

Kredel always performs a Bassini or Kocher after ligating the sac.

Karewski never saw a recurrence after simple ligation.

Spitzer operates even under one year.. For atrophic nurslings paraffin injections are safer.

Duodeno jejunal Hernia.—Narath places the first case of duodenojejunal hernia, cured by operation, on record. The patient suffered from indefinite abdominal pains, constipation and vomiting and gradual swelling of the abdomen. After years a mass formed in the right parasternal line which was diagnosed as tumor of the gall-bladder or pylorus. When the abdomen was opened the greater part of the intestines was found in the duodenojejunal fossa. After reduction, the opening in the mesocolon was sutured with perfect result.

Pathology and Therapy of Hour-glass Stomach.—A certain degree of atavism is assumed by Wullstein in the genesis of congenital hour-glass stomach, since in certain lower animals the pyloric and cardiac portions are separated by a distinct constriction. In other cases neighboring organs such as the pancreas, celiac, splenic or phrenic vessels may exert pressure during early fetal life. Acquired cases are due to inflammatory changes, trauma, ligamentous adhesions, neoplasms or strictures. Certain rare specimens were then demonstrated. In (1) a peptic ulcer had formed at the isthmus of a congenital hour-glass stomach. In (2) torsion occurred at the isthmus with symptoms of ileus. The cause of the constriction in (3) was a gastro-enterostomy done with a loop of jejunum of insufficient length and in (4) the use of corsets. In (5) the cardiac portion was pulled toward the duodenum and the pyloric was placed underneath the cardiac. A new operation was then described which consisted in rendering the spur projecting into the stomach gangrenous by means of sutures.

Technic of Stomach Operations.—Narath has devised an ingenious instrument, the gastrophor, which takes the place of the assistant who fixed the stomach. It consists of two pairs of arms which can be opened or closed like a forceps. When applied, the raised portion of the stomach is clamped off so that the contents cannot escape after incision. Hemorrhage is avoided and the button cannot fall into the stomach and the operation can be performed more easily and in shorter time.

Peptic Ulcer after Gastro-enterostomy.—Brodnitz demonstrated a specimen obtained from a case of anterior gastro-enterostomy for benign pyloric stenosis. The patient did well until colicky pains made their appearance every night and a painful tumor developed under the scar. The second operation disclosed a large jejunal ulcer opposite to the anastomosis, which had become adherent to the parietes. Fourteen other cases were collected from literature with the following conclusions: (1) Peptic ulcer has only been observed after gastro-enterostomies for benign affections. (2) It may develop with hyperacidity as well as with normal or subnormal acidity, with anterior as well as posterior anastomosis. (3) Sometimes there are no symptoms,

in other cases nocturnal pains. (4) In half of the cases there was a recurrence.

Intestinal Stenosis.—Only tuberculous and cancerous processes play an important part in causing intestinal stenosis, for, while a number of benign conditions may cause a narrowing of the lumen, Haasler points out, that this is generally compensated for so perfectly that no disturbances arise. Where, however, the underlying disease has a progressive character, this power of adaptation is necessarily absent and irreparable stenoses will follow. Multiplicity of stenoses, such as occur in syphilis, may also exclude spontaneous repair.

Intestinal Toxins in Ileus.—P. Clairmont reports the following experiments: The intestinal contents above a stenosis were rendered free from bacteria by filtration and then injected into animals both intravenously and subcutaneously. In all cases death ensued. Bouillon cultures of the intestinal contents, when filtered, had the same action. The toxins were not affected by heat. In half the experiments the toxic action was neutralized by mixing with the normal brain substance of rabbits or guinea-pigs. In some cases a marked hemolytic action toward the blood of dogs and horses was noticed. Neither active nor passive immunization succeeded.

Surgical Treatment of Chronic Dysentery.—In certain obstinate cases of dysentery all medical treatment is without avail, it is then proper to make an artificial anus in the right iliac region so that the large intestine is placed at rest. In J. Steiner's case the large intestine was first thoroughly cleared of mucus and pus by means of 5 to 6 quarts of warm water and then dilute solutions of protargol or tincture of iodine allowed to flow in. It is necessary to examine the fluid washed out from time to time to see if mucus and pus are decreasing. When the ulcers seem to be healed the anus is closed temporarily by means of cotton sponges saturated with vaseline; if no new symptoms develop, the anus is finally sutured. In the speaker's case the treatment had to be continued for eleven months.

(To be Continued.)

BOOK REVIEWS.

THE ANATOMY OF THE HUMAN PERITONEUM AND ABDOMINAL CAVITY. Considered from the Standpoint of Development and Comparative Anatomy. By GEORGE S. HUNTINGTON, M.A., M.D., Professor of Anatomy, College of Physicians and Surgeons, Columbia University, New York City. Illustrated with 300 full-page plates containing 582 figures, many in colors. Lea Brothers & Co., Philadelphia and New York.

THE appearance of this truly sumptuous volume marks a distinct epoch in the history of American medical literature. To a greater extent than ever before perhaps does it render applicable to practical use the results of a vast amount of research along previously neglected lines. Few books that have appeared in the present generation represent so much individual work of so high an order as does this study of the ontogenetic and phylogenetic relationships of the human abdominal cavity and its contents. In addition to the increased breadth of scope attained by throwing the side lights of embryology and comparative anatomy on the study of adult human morphology, the subject acquires a closer connection with biology at large and a degree of philosophical significance, which greatly enhances the interest of the parent study.

Beginning with a brief résumé of the more important steps in the development of the ovum the author takes up in sequence the comparative anatomy and developmental stages of the foregut and stomach, the spleen, pancreas and liver, the large and small intestine, the ileocolic junction, cecum, and vermiform appendix. The book is not a treatise on comparative anatomy nor a text-book of embryology, but is a complete exposition of the genealogy of each organ and peritoneal fold in man through all the devious steps back to its earliest prototype in the embryonal life of the simplest mammals.

The practical value of the work can hardly be overestimated. Many of the anomalous and perplexing conditions sometimes encountered in abdominal surgery have very simple explanations when their development is considered, and any one who has ever been puzzled by a case of non-rotation of the cecum, a sliding hernia or retroperitoneal appendix will find abundant food for thought in the descriptions here given of the manner of their origin. The peritoneal duplicatures at the duodenojejunal angle and the sigmoid fossæ are subject to variants, which may be of surgical significance, while ignorance of the development of the biliary and pancreatic ducts may lead to serious embarrassment in operating.

The region of the appendix through its somewhat complicated origin abounds in surprises for the inexperienced and a thorough understanding of the possibilities in the way of folds and fossæ makes otherwise difficult operations simple.

Almost equal in value with the text are the illustrations, which have been introduced on a scale seldom attempted in medical books. They are nearly all original and of three types, schematic, drawings of anatomical preparations and photographs. The author's experience as a teacher gives his diagrams unusual point and force, while the resources of the morphological museum of the university have furnished an unexampled wealth of material for use in the preparation of the illustrations.

The work will undoubtedly attract world-wide attention and will enhance the reputation not only of its author and publishers, but of the country that gave it birth.

A LABORATORY TEXT-BOOK OF EMBRYOLOGY. By CHAS. SEDGEWICK MINOT, LL.D. (Yale), D.Sc. (Oxford), Professor of Histology and Human Embryology in the Harvard Medical School. P. Blakiston's Son & Co., Philadelphia.

BOTH teachers and students will be inclined to hail the appearance of this volume with satisfaction, for it will greatly lighten the labors of each. Based on the author's well-known and exhaustive Human Embryology, it forms a practical working accessory to that magnificent work, though not in any measure intended to supplant it. For medical men it possesses the virtue of adhering more closely to the development of the human embryo than has usually been deemed feasible in works of this description and throughout the author's object has been to make his teaching subservient to the elucidation of this aspect of the study. The illustrations, so important a feature in treating this subject, are of unusual beauty and perfection of execution, notably the series of plates illustrating reconstructions from sections of the pig embryo of 12 mm., while the excellence of the paper and typography contribute much to the elegant appearance of the book.

The material is arranged on sound pedagogical principles and, as it stands, forms a satisfactory course in embryology. After three sections devoted to general conceptions, the early development of mammals in gen-

eral and of the human embryo in particular, over a hundred pages are given up to a detailed study of the pig embryo to be followed by less extensive sections in the chick and the rabbit. A chapter on the human uterus and fetal appendages and one on laboratory methods completes what is very nearly a perfect book.

A TEXT-BOOK OF SURGERY. For Students and Practitioners. By GEORGE EMERSON BREWER, A.M., M.D., Lecturer on Clinical Surgery at the College of Physicians and Surgeons, Columbia University, New York; Attending Surgeon to the City Hospital, Junior Surgeon to the Roosevelt Hospital, etc. Illustrated with 280 engravings in the text and seven plates in colors and monochrome. Lea Brothers & Co., New York and Philadelphia.

TO CONDENSE a single branch of modern surgery into a book of readable size is in itself a praiseworthy feat—to compress into a small compact volume of 680 pages all the salient features of the entire science is indeed a remarkable achievement. That, precisely, is what the eminent author of this text-book has accomplished. To a man, the profession will be grateful to him for the very important and arduous work he has done. Most particularly, will this be true of all teachers of surgery. There has, indeed, been an almost absolute disregard of the needs of this large and important class by all recent surgical writers. This recognition of their needs will be hailed with cordial approval.

The volume under consideration occupies a most enviable position, in that it enters the field almost without a competitor worthy of the name. Its author's well-known, terse and emphatic style is sponsor for the belief that its field of utility will never be narrowed by future additions to the text.

It is almost superfluous to state that in every department touched upon there is evidence of a breaking loose from the old traditions of surgery, which cling so tenaciously to most surgeries, and a praiseworthy and eminently successful effort made to state the common sense and the truth. With well recognized courtesy, reference is made on all moot questions to opinions of leaders in the department under discussion and yet, although always free from the taint of dogmatism, the book is pre-eminently specific in its instructions. It occupies a happy midground between a narrative of the modern doings in the surgical world and the usual commonplace text-book.

In specific detail, attention should be directed to the lucid and clear-cut chapter on the diseases of the Liver and Biliary Passages. There is no "atmosphere" in the treatment of these intricate problems; the picture presented is what is known among painters as "photographic." Because of the well-known work done by the author in this branch of surgery one would expect such a presentation of the subject, and there is no disappointment.

It is rich in reference to and in interpretation of the most modern and progressive views of surgical principles. The physical appearance of the book is in keeping with its vigorous and explicit trend of thought, it is well illustrated by drawings and photographs. Every desirable new technic is graphically presented; in most cases the drawings being reproductions of the originals presented within a year or so, at the great national society meetings. Thus, on page 324, Finney's operation for pyloroplasty is pictured, after his own pen, and on pages 166, 167 and 168, the Matas operation for the radical cure of aneurism is presented. It is safe to say that these and many other illustrations, which appear in this full little volume, are given to the public under book cover for the first time. This shows how absolutely up-to-date the volume is and how much of the old has been omitted to make room for the new and fresh.

Those who carefully read and follow this text-book, be they students or practitioners, will know more surgery, will do better work and will save more lives for having done so.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

EUROPEAN IMMIGRATION. Special Consular Reports.

DRUG TRADE IN FOREIGN COUNTRIES. Special Consular Reports. 8vo, 418 pages.

DISPOSAL OF SEWAGE AND GARBAGE IN FOREIGN COUNTRIES. Special Consular Reports. Volume 17.

JOLIFFE. Incidents and peculiar beliefs in Meridional France. By M. Sommerville. 12mo, 214 pages. Drexel Biddle, Philadelphia.

DISEASES OF THE NOSE AND THROAT. By Dr. C. H. Knight. 8vo, 423 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

A NARRATIVE OF MEDICINE IN AMERICA. By Dr. J. G. Mumford. 8vo, 508 pages. J. B. Lippincott & Co., Philadelphia and London.

ELEMENTARY BACTERIOLOGY. By M. L. Dhingra. 8vo, 145 pages. Illustrated. Longmans, Green & Co., New York, London and Bombay.

PRINCIPLES AND PRACTICE OF SURGERY. By Dr. J. T. Vaughan. 8vo, 569 pages. Illustrated. J. B. Lippincott Co., Philadelphia and London.

OBSTETRIC NURSING. By Dr. A. M. Fullerton. 12mo. Sixth revised edition. 270 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

INTRACRANIAL TUMORS AMONG THE INSANE. By Dr. I. W. Blackburn. 8vo, 95 pages. Illustrated. Government Printing Office, Washington, D. C.

NURSE'S GUIDE TO SURGICAL BANDAGING AND DRESSINGS. By Dr. W. J. Smith. 16mo, 162 pages. J. B. Lippincott Co., Philadelphia and London.

PROGRESSIVE MEDICINE. Dr. H. A. Hare. Volume 3. September, 1903. 8vo, 398 pages. Illustrated. Lea Brothers & Co., Philadelphia and New York.

SCHEME FOR DIFFERENTIAL TESTING OF NERVES AND MUSCLES. By Dr. J. M. Mosher. 8vo, 58 pages. Illustrated. Brandow Printing Co., Albany, N. Y.

JAHRESBERICHT ÜBER DIE FORTSCHRITTE IN DER LEHRE VON DEN PATHOGENEN MIKROORGANISMEN. Vol. 17, 1901, Second Part. 8vo, 1,100 pages. S. Hirzel, Leipzig.

A COMPEND OF DISEASES OF THE SKIN. By Jay F. Schamberg, A.B., M.D. Third edition. 12mo, 291 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

A COMPEND OF HUMAN ANATOMY. By Samuel O. L. Potter, M.A., M.D., M.R.C.P. Lond. Seventh edition, 12mo, 372 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

LATIN GRAMMAR OF PHARMACY AND MEDICINE. By D. H. Robinson. Fourth Edition. Revised by Hannah Oliver. 8vo, 273 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

PRACTICAL MEDICINE SERIES. Volume VII. Pediatrics. Edited by I. A. Abt. Orthopedic Surgery. Edited by John Ridlon. 12mo, 232 pages. Illustrated. The Year Book Publishers, Chicago.